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NAME OF AUTHOR/*NOM DE L'AUTEUR* James John Gascoyne

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NAME OF SUPERVISOR/*NOM DU DIRECTEUR DE THÈSE* Dr. S.W. Mendryk

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AN ANALYSIS OF INJURIES WHICH OCCURRED IN PHYSICAL EDUCATION, INTRAMURAL AND EXTRAMURAL ACTIVITIES AND FREE PLAY IN THE CALGARY ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT #1 DURING THE 1973-1974 AND 1974-1975 SCHOOL YEARS

by

© JAMES JOHN GASCOYNE

A THESIS

SUBMITTED TO THE FACULTY OF

GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF MASTER OF SCIENCE

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "An Analysis of Injuries which Occurred in Physical Education, Intramural and Extramural Activities and Free Play in the Calgary Roman Catholic Separate School District #1 during the 1973-1974 and 1974-1975 School Years" submitted by James John Gascoyne in partial fulfillment of the requirements for the degree of Master of Science.

S. W. Mendryk
Supervisor

H. J. McLeod

David Magee

Date October 12, 1978

ABSTRACT

The purpose of this study was to determine the incidence and nature of injuries occurring to participants in physical education, sport clubs, intramural and extramural activities sponsored by the Calgary Roman Catholic Separate School District #1 so that practical recommendations could be made in order to reduce the number and severity of injuries.

The accident report form had been designed and was in use several years before the study took place. The information was adapted for computer analysis of all sections. An SPSS method was used for programming.

The sample consisted of injuries to 1621 students, 989 males and 632 females, who attended school over two academic terms.

The following conclusions were drawn within the limitations of the study. Males sustained more injuries than females. The highest rate of injury occurred from grades 5 to 9. On the elementary level, recess and noon hours were the most dangerous times of the day. On the secondary level, physical education instruction and its related activities accounted for the greatest number of injuries. Specifically, from the results of this study, gymnastics, football and basketball were the most hazardous

sports. On the elementary level, the playing field or tarmac was the most hazardous facility area. On the secondary level, the most hazardous facility area was the gymnasium. The area of the body above the shoulders sustained the greatest number of injuries.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

The field of education has evolved from a point where the mental or intellectual side was the only one of importance to the point that we have today where more and more stress is put on the "well rounded" education of the individual being. This "well rounded" education includes more stress on the physical aspects of education than has ever been seen before. The questions have been raised as to the necessity of having sports and athletics as part of a school program, especially when these particular activities can be more hazardous and harmful than beneficial to one's health. As a result of this study, it is hoped that our schools, and in particular the physical education programs, will be made safer.

With increased stress on the development of sound and fit bodies, physical educators are pressured by cirriculum committees, provincial education legislators, administrators, parents, and students to provide a sound program that will enable young people to achieve the goals set by their superiors, their peers and themselves. Whether this be found in intramural and interscholastic activity or by a quieter inner urge for physical fitness and self-development, the

physical educator must provide the safest means possible for the young athlete to accomplish the goals that will enable him to reach his end goal.

Another purpose of this study was to look at various factors that were in operation in a school physical education environment that either directly or indirectly resulted in needless injuries to participants in these programs. To help develop recommendations that may lead to a safer environment for physical education is one of the goals of this study. The accident report form was designed to descriptively analyze injuries that have occurred in order to gain insight into possible methods for preventing needless accidents to participants in school physical education programs.

In order to provide safe environments for students within school systems, a concentrated and conscientious effort on the part of many in the school program in required. The teacher, coach, and physical educator working at the practitioner level needs to be aware of all possible dangerous situations in their program and work to alleviate these problems. Often working at this level is not the only need. Administrators within the school as well as on local school boards may need to activate reforms that will make the environment safer, particularly for students participating in the required physical education programs. If need be, provincial legislation may be required to provide for the optimal environment in which students can properly progress in their physical development. Whatever is required, it is

hoped that reforms and changes instituted would provide schools in the Province of Alberta with a model program for all to pattern.

The Problem

The purpose of this study was to determine the incidence and nature of injuries occurring to participants in physical education, sports clubs, intramurals and extra-mural athletic activities sponsored by the Calgary Roman Catholic Separate School District #1, so that practical recommendations can be made in order to reduce the number and severity of injuries. To be effective, it is hoped that these practical recommendations will be implemented by coaches, physical educators, school administrators, and all other personnel directly related to the school program.

Delimitations

A number of restrictions on the study and sample were necessary. The delimitations were as follows:

1. The study used data collected from the academic school years 1973-1974 and 1974-1975.

2. Schools of the Calgary Roman Catholic Separate School District #1 in Calgary, Alberta were used.

3. The accident reports were completed on a standard injury report form that was distributed to the schools.

4. Sample size was limited to those students enrolled with the Calgary Roman Catholic Separate School

District #1 for the aforementioned school terms.

Limitations

Certain other limitations were necessary in order to complete the study. These limitations were of a serious nature and would affect the interpretations made by people examining the data and then applying it in a practical way. The limitations were as follows:

1. The only subjects in this study were those who either filled out an accident report form or had the form filled by a teacher or other authorized personnel. A reportable injury was one in which first aid or medical treatment was given; dental injuries requiring professional attention; and an injury that caused an athlete to cease participation in the usual manner that they were accustomed in either a practice or game situation.

2. It might be correctly assumed that not all injuries were reported. Because of the fear of an athlete not being able to participate, an injury may not have been reported at all or if it was reported the severity of the injury could have been disguised. Peer pressure might also keep an athlete from reporting an injury.

3. The competence of the personnel assessing the injury varied greatly. This would affect not only the injury assessment but the completion of the accident report form.

4. Although it was hoped that the accident report form was presented clearly, there was room for misinterpre-

tation on the part of the person reporting the accident. Because of this, some inaccurate information may have been relayed to the compiler.

5. In dealing with the process of collecting, interpreting, analyzing, and summarizing the data there was always room for some error even though it was hoped that this was kept to a minimum.

6. The report form itself would limit some of the information that could be given.

Definition of Terms(1)

Incidence of Injury. The rate of injury, often expressed as so many injuries per 1000 participant exposures. In the present study incidence of injury shall be taken as the number of new injuries occurring over a period of time and expressed as a percentage of the total number of injuries having occurred.

Student. Any male or female between the ages of 5 to 19 inclusive.

Nature of Injury. A description of the type of injury sustained in the accident. For example, a knee sprain or finger fracture reflects the nature of injury.

Cause of Injury. An etiological analysis of an injury. In most cases, the cause or causes reflect the opinion of the teacher, coach, nurse, physician or student.

Body Region Injured. The area or locale of the body sustaining the injury.

Head. Any part of the body located above the neck that does not include the face, nose, teeth, or eye.

Injury. A damage or hurt, done or suffered through a specific impairment of body structure or function caused by an outside agent or force.

Abrasion. A rubbing caused by friction, or a scraping off of skin to cause local pain, stiffness, tenderness, and inflammation.

Burn. Injury to tissues caused by exposure to high temperature or to factors causing the stimulation.

Bone Bruise. A large, blotchy, superficial discoloration of a bony area with swelling due to hemorrhage into the tissues from ruptured blood vessels.

Concussion. A violent shock or jarring of the brain caused by a direct blow to the head causing various degrees of nausea, dizziness, ringing in the ears, unsteadiness, mental confusion, loss of memory, loss of consciousness, impairment of neural function, retrograde amnesia.

Contusion or Muscle Bruise. Injury to soft tissues caused by a direct blunt force which does not cause a disruption or laceration of the surface, but does create local pain, stiffness, tenderness, bleeding and swelling into the surrounding tissues with subsequent discoloration and hematoma formation.

Dislocation. Total displacement of a joint with loss of articulation or normally opposing joint surfaces caused by a direct or indirect blow of fall, and characterized

by pain, tenderness, deformity, swelling, and loss of function. A subluxation is an incomplete dislocation.

Fracture. A loss or break in the continuity and integrity of the structure of bone caused by a direct blow, indirect trauma or a fall, and characterized by possible deformity, pain, tenderness, swelling, bleeding, loss of function.

Laceration. Trauma causing a break in the continuity of the skin having irregular edges and characterized by bleeding, pain, and tenderness.

Nosebleed. Bleeding from the nose, usually the result of a direct trauma causing a rupture of small blood vessels.

Puncture. A wound in the skin caused by penetration of a sharp object, usually continuing deep in the tissues, and characterized by local pain, bleeding, tenderness, and loss of skin continuity.

Sprain. Occurring to the ligaments of a joint caused by direct or indirect trauma producing a twisting or moving of a joint beyond its normal range with subsequent stretching or tearing of the fibres of a ligament. It is characterized by varying degrees of disability, loss of function, abnormal range of movement, swelling, pain, tenderness, hemorrhage.

Strain. Occurring to a muscle caused by trauma to a portion of the musculotendinous unit due to violent contraction, excessive forcible stretch or over-exertion which causes a stretching or tearing of muscle fibres. It is

characterized by various degrees of local pain aggravated by muscle movement, swelling, hemorrhaging, tenderness, loss of function, abnormal movement patterns, spasming, strength loss.

Tooth Fracture. Obvious deformity or loss of normal structure of a tooth caused by direct trauma or violent occlusion.

CHAPTER II

REVIEW OF LITERATURE

Introduction

There are several studies that deal with the incidence of injury as related to specific sports but very few that relate to school systems. The importance of specific sports studies is not to be downgraded, however, in this study the general school studies will be of more importance for comparison purposes.

In dealing with these school studies, variability has been found. The variability specifically occurs in the accident report forms, methods of reporting, emphasis and approach to particular sports and methods of interpreting the data. Because of those variabilities, comparison may not always be meaningful but is generally of importance when discussing the overall problems that are presented.

Some of the main problems in comparing studies deal with the methods of reporting and recording of injuries. Methods for reporting and recording were so varied and

diverse, and with both qualified and unqualified personnel doing reporting and recording, some questions of accuracy of reporting arises. Until some method of universal reporting and recording is developed, overall comparisons of studies will always be subject to some credence of accuracy.

Incidence of Injury

In 1978, Hartsell(1) carried out a study that occurred over a two year period, 1974-1975 and 1975-1976. The study used as its subjects, students from the Edmonton Public School System. In the study it was reported that the male students tended to be injured more than the females. It was noted that 14 to 15 years of age appeared to be the injury prone years. Females reached a higher incidence of injury earlier than males which was thought to be due to an earlier maturation factor. Recess was the most hazardous for the elementary grades and physical education was most hazardous for the secondary grades. As the program phase became more structured and intense, the severity of injury increased. The injury rate declined when physical education was non-compulsory. Contact sports and interscholastics were more injurious to grades 10 to 12, whereas in non-contact sports and intramurals there were reported more injuries to grades 7 to 9. Free play was the activity most hazardous at the elementary level. On the secondary level basketball and gymnastics were most hazardous. In intramurals, basketball and touch football had a high incidence of injury.

In interscholastics, tackle football and basketball were more injurious. Generally, causes of injury for grades Kindergarten to 6 did not involve an external object or person, whereas for grades 7 to 12 an external object or person was frequently involved.

In a study by Mendryk et al.(2) which comprised a random stratified selection of schools in Alberta, an increase in the incidence of injury with increasing grade level was reported. Males, on the elementary level, sustained more injuries than the females. The peak age for injury to males and females was 11 years. Elementary grades showed peak times of day for injury to be noon hour, morning recess, and afternoon recess, in descending order of frequency occurrence. It was reported that the incidence of injury increased from age 10 to 15 in grades 7 to 12, but dropped after age 15. For the number of participants, interscholastic competition yielded the highest incidence of injury. An interesting result reported was even though males had a higher incidence rate, if the male-oriented sports were eliminated, the incidence of injury was much closer for males and females. Overall, the incidence of injury was lower in grades 11 and 12. The times of day where peak injury occurred at the high school level were 12:00 noon to 1:00 pm and after 4:00 pm which coincided with the intramurals and interscholastic participation respectively. During physical education instruction, the gymnasium was the area that was reported to have the highest incidence of injury while the

playing field-tarmac had the second highest incidence of injury for facility area.

Dale et al.(3) studied injuries occurring in the public schools on the elementary level over a one-year period. Grade 2, or 7 year olds, were injured most often with 8 year olds and 10 year olds injured next most frequently, respectively. The playground accounted for three-quarters of the injuries and the gymnasium was reported to account for one-tenth of the injuries. The peak times of the day for injury were the noon hour, morning recess, and afternoon recess, in descending order of frequency occurrence.

Mendryk and Dickau(4) investigated athletic injuries in the Edmonton Public School System for the years 1965-1966 and 1966-1967. Of the injuries reported on the elementary level, 22 percent were athletic injuries for both years. On the junior high level the rate of injury was 65.7 percent and 70.9 percent for each respective school year with respect to athletic injuries. On the high school level, of the injuries reported, athletic injuries accounted for 67.2 percent and 71.8 percent respectively for each school year. For grades kindergarten to 6, the incidence of injury increased as the grade level increased. In junior high school, 60 percent of the injuries in athletics were found in gymnastics, track and field, volleyball and basketball. Sixty-two percent of all the injuries in senior high school were seen in gymnastics, football, basketball, and track and field. Grade 10 has more injuries than any other grade.

Another study conducted by Mendryk and King(5) was an analysis of play, physical education and athletic injuries in the Edmonton Public and Separate Schools in 1967-1968. The incidence of injury increased as age increased until the end of grade 10 after which physical education was no longer compulsory. Gymnastics and free play demonstrated the highest incidence of injury for kindergarten to grade 6. The major portion of injuries on the elementary level were during morning recess, afternoon recess and noon hour respectively in descending order of incidence. As the grade level increased, so did the frequency of injury during physical education classes. On the secondary level the sports that caused the greatest number of injuries were basketball, track and field, volleyball and soccer, in descending order of incidence. On the secondary level there was no particular time of the day that could be indicated as a peak time for injuries during physical education classes. The highest incidence of injury was reported during physical education classes with interscholastic activities ranking second. The age which the greatest number of injuries occurred on the secondary level was 14 for males and 13 for females.

Parrish et al.(6) reported males were injured more frequently than females in public schools. This study indicated the overall frequency to be highest in grades kindergarten to 3 but decreased for grades 4 to 10. An increase was reported for grades 11 and 12.

A study by Medved and Pavisic-Medved(7) in 1973

surveyed injuries occurring during physical education classes and sports in public schools. The highest incidence of injury was shown in physical education classes for all grades. In physical education classes the majority of accidents happened in open-field situations.

In a study by Smith(8) it was reported that on a junior high level the grade 7 students were injured most frequently while grade 8 and 9 students had less injuries respectively in descending order.

A study by Lingard et al.(9) over a six-month period in New Zealand indicated that injuries increased gradually with an increase in age. Males under 13 years of age were rarely injured. Females were injured less frequently than males and their injuries were generally less serious than the injuries sustained by the males. Because of regional disparity, there was a notable difference in the sports that inflicted the most injuries. In this study, rugby and soccer accounted for most of the injuries in specific activities.

An eight-year study by Collins(10) on junior high schools indicated that younger participants sustained few injuries. At this grade level it was found that males 14 years of age had the highest incidence of injury. Grade 7, or 12 year olds, received the fewest injuries. Football was shown to be the most dangerous sport with basketball ranked as a distant second.

In a study by Bowers(11), it was found again that football accounted for the majority of injuries on both high

school and junior high school levels. As shown by Collins, basketball also rated a distant second on both the junior and senior high school levels.

General Studies on Physical Activity

Nature of Injury

Hartsell (1) found that on the elementary level the body region most commonly injured was the head. Lacerations was the type of injury most often seen to the head. The second most common body part injured was the face where again lacerations was the most frequent type of injury. The third body part most commonly injured was the teeth. The part of the school program when most of these injuries took place was during recess. On the junior high school level the finger was most commonly injured and lacerations was the most common type of injury to the finger. The head was the body part next most commonly injured and, again, lacerations was the most common type of injury. The third most common body region to be injured was the ankle and the type of injury most common to this body part was the sprain. On the high school level the body regions most commonly injured were the finger, the ankle, and the head, given in descending order of frequency of occurrence. Lacerations were the most common type of injury to the finger and head and sprains were the most common injuries to the ankle.

In the study done by Mendryk et al.(2), the school-age athletes on the elementary level sustained the majority

of their injuries to the head, face, and teeth. The body regions next most commonly injured were the elbow, wrist, finger, and thumb collectively. The most common type of injury to the head and face region was lacerations. The most common injury to the knee and ankle was sprains. Fractures were most common in the area of the wrist, fingers, and thumb. On the secondary level the most common injuries were designated as collective groups. The most common injuries were to the ankle and knee which was closely followed by the wrist, finger, thumb and hand and the head, face, nose, teeth, and eyes. The most common type of injury was sprains followed by fractures and dislocations. Open wounds and contusions were common to nearly all body areas. Most of the sprains were to the ankle and knee. Fractures occurred most frequently to the hand. Lacerations were most commonly seen to the head and facial areas. Muscle strains were most common to the back. Dislocations occurred most commonly to the thumb. The joint regions were injured most frequently. The major types of injury were sprains, fractures, and dislocations.

Mendryk and Dickau(4) in their study showed the fingers, ankles, head, and face to be the most commonly injured body parts. At the elementary level, face and head injuries were most common while injuries to the ankle and finger ranked second in frequency. On the junior high and senior high school levels, injuries to the ankle and finger were most frequent. On the junior high school level head and face injuries ranked second and on the senior high school

level face and back injuries ranked second for frequency of injury.

The head, face, and teeth accounted for the majority of the injuries in a study conducted by Mendryk and King(5). Injuries to the hand, particularly the fingers, ranked second, while injuries to the foot, ankle, and knee were also frequent. For grades 1 to 3 it was shown that the head, face, and teeth were most commonly injured with injuries to the knee occurring the next most frequently. The types of injuries sustained were basically contusions and lacerations. Grades 4 to 6 showed a similar pattern to body areas injured as did grades 1 to 3 with most of the injuries being to the head, face, and teeth. Injuries to the ankle and hand were ranked second in frequency of injury. The types of injuries most commonly seen were sprains, lacerations, contusions, and fractures. Grades 4 to 6 also had the highest incidence of dental injuries. For grades 7 to 9 the hand was the body region most commonly affected. Secondly ranked in frequency were the ankle and foot. Sprains, fractures, muscle strains, and lacerations were the most common types of injuries being ranked in respective descending order. Grades 10 to 12 followed a similar pattern to that of grades 7 to 9 with the main types of injury being fractures, sprains, and contusions. The head received the majority of the lacerations. The arm, hand, and in particular the fingers, foot, ankle, and leg were characterized by fractures and sprains. There were relatively few injuries to

to the trunk and those that did occur were mainly muscle strains.

In his report Collins(10) found that knee and ankle sprains were the most frequent injuries at the junior high school level. Contusions were ranked second as the type of injury to have occurred with fractures of the hand and foot ranked third for frequency of injury.

Collins and Evert(12) studied the adolescent athlete and found head and neck injuries to be rather infrequent but of a serious nature when they did occur. Shoulder dislocations were more frequent than fractures. Acromiclavicular sprains were frequent for an athlete more than 14 years of age. The elbow received many epiphyseal injuries. The scaphoid bone was the most commonly injured bone in the hand and wrist. Quadriceps contusions and strains were common as were knee injuries. In the lower leg, fractures were common. Sprains to the ankle were second only to knee sprains.

In a study by Yost(13) it was found that the mouth, jaws and teeth were most frequently injured. The areas next most frequently injured were the head and eye. The most frequent injuries to occur on the playground were cuts, lacerations, and puncture wounds. Contusions were the next most frequent injury with fractured limbs and sprains being also very frequent.

In dealing specifically with fractures to children, Johnson et al.(14) found that grades kindergarten to 6

accounted for most of the fractures. The majority of these fractures occurred to the wrist, fingers, and hand. Grades 7 to 9 accounted for 30 percent of the fractures with the fingers being the body part most commonly injured. Grades 10 to 12 also had fingers as the body part most commonly fractured. Grades 10 to 12 accounted for 27 percent of all the fractures. It was also noted that as the grade level increased, so did the fracture rate of the foot, ankle, and face.

Siffert and Levy(15) did a study similar to Johnson et al. and found rather similar results. In the adolescent, dislocations occurred more frequently. It was reported that double fractures of the forearm occurred more frequently before puberty whereas the Colles fracture was more common after puberty. Tibial fractures were common to adolescents involved in sports characterized by violent pivotal forces such as football and basketball.

Jokl(16) studied athletic injuries in very general terms. It was found that soft tissue contusions were the most common type of injury. This was followed by abrasions and lacerations, musculotendinous trauma, and fractures. Certain body regions were characterized by specific injuries. The ankle, knee, and shoulder were characterized by sprains, the lower leg by muscle contusions and strains, the thigh by musculotendinous trauma, and the wrist and hand by fractures.

Cause of Injury

Hartsell(1) found the major probable cause of injury on the elementary level to be a fall or trip. Following this were accidental collisions and blows by an object. The majority of injuries as a result of falls or trips, obstructions, accidental collisions, and normal body contact occurred on the playing field. In grades kindergarten to 3 the majority of falls or trips occurred on the play apparatus but for grades 4 to 6 the gymnasium accounted for a higher rate of falls or trips. Injuries because of carelessness were evenly distributed between the classroom and the playing field. As the grade level increased, injuries caused by falls or trips, accidental collisions, blows by an object, normal body contact, and carelessness also increased. Kindergarten students were injured most frequently from falls or trips. Students in grades 1, 3, and 5 were frequently injured by obstructions and students in grades 2 and 6 were injured most frequently by accidental collisions. The majority of injuries for all grades occurred during activity while on the playing field. On the junior high school level, it was found that the major cause of injury to grade 7 was carelessness and the major cause in grades 8 and 9 was blows by an object. Grade 9 was the single grade with the highest injury rate of all grades. With the exception of carelessness, grade 9 accounted for the most instances of injury for all probable causes. The rate of injury by falls or trips remained fairly constant in all grades. From grades kindergarten to 9, the injury rate due

to normal body contact and blows by an object increased. Injuries caused by falls from the apparatus also increased with increased grade level from grades 7 to 9. As the grade level increased the injuries caused by accidental collision decreased. On the high school level, the major cause of injury was a blow by an object with carelessness ranked as second. For grades 10 and 11 students, the major cause of injury was a blow by an object which occurred most frequently in the gymnasium. Carelessness in the classroom was the major cause of injuries in grade 12. Overall the injury rate decreased with increased grade level in senior high school. The gymnasium was the facility area which accounted for the majority of the causes of injury from grades 7 to 12. Injuries caused by obstruction were most frequent on the playing field, and injuries resulting from carelessness were most frequent in the classroom. For grades 7 to 10, the majority of injuries due to normal body contact occurred in the gymnasium, but for grade 11 and 12 this cause was seen most frequently on the playing field. Accidental collisions for grades 7 to 10 were more frequent on the playing field, whereas in grades 11 and 12 they were more frequent in the gymnasium. Accidental collisions were more frequent for causes of injury in grade 10 than normal body contact but in grades 11 and 12 the reverse was true.

Mendryk et al.(2) reported that causes of injury for grades kindergarten to 6, in descending order of frequency, were falls or trips not due to an external cause,

collisions between participants, blows delivered by an object, falls off gymnastic apparatus, and carelessness. During organized instruction, the majority of the injuries were due to accidental falls, falls off gymnastic apparatus, and accidental collisions. For injuries occurring during free play, the majority were the result of trips or falls, accidental collisions, blows by an object, and carelessness. On the secondary level the majority of injuries were caused by body contact with another individual or an object. Falls off of equipment or participation in a game accounted for the next most frequent causes of accidents.

Medved and Pavisic-Medved(7) reported that the major cause of accidents on the elementary level was the result of bad technique which was closely followed by accidental causes due to another individual. Poor facilities were ranked as the third most frequent cause of accidents on the elementary level. The four main causes of injury on the secondary level were bad technique, carelessness, contact with a player, and poor facilities. Whatever the specific cause, the majority of injuries resulted from a cause connected with another individual.

Mendryk and King(5) reported falls and accidental collisions to be the major cause of injury for grades 1 to 3. These were also the major causes of injury for grades 4 to 6 with the addition of blows by an object and faulty landings. Blows by an object, accidental collisions, and faulty landings were the major causes of injury for grades 7 to 9 and

body contact in the normal course of an activity was the major cause of injuries in grades 10 to 12.

Mendryk and Dickau(4) concluded that the junior high school level, the major causes of injury were faulty equipment, poor facilities, and student negligence. The following year, it was reported that injuries due to faulty equipment and facilities had increased but injuries due to negligence had decreased. At the high school level, the first year reported faulty equipment, facilities and negligence were major causes of injury. The following year indicated no injuries resulting from equipment or facilities, and a reduction of injuries due to negligence occurred.

Dale et al(3) found the causes of injuries, in descending order of frequency, to be the result of unorganized play, playground equipment, collision with a person, and organized play. Almost 90 percent of the accidents occurred while alleged supervision by adults was provided.

Jokl(16) reported the major causes of injury to be poor pre-season training, fatigue, and lack of rule enforcement.

Yost(13) reported the most common causes of injury to be, in descending order of frequency, climbing apparatus, accidents not involving equipment, and sports equipment. Seventy percent of the injuries reported were the result of interaction with climbing apparatus and sports equipment.

Johnson et al.(17) reported falls to be of equal importance to all grade levels as a cause of fractures.

Horseplay caused more fractures in grades 7 to 9 than did falls. Playground and gymnastics apparatus accounted for a similar fracture rate in all grades.

Higdon(18) studied National Safety Council Information of 1968 and reported gymnastics and track and field injuries resulted from poor supervision, inadequate facilities, improper conditioning, and poor instruction. Hockey injuries were the result of lack of equipment, broken rules, and collisions with other players or objects.

Glasgow(19) felt that young athletes were more prone to injury because of physical and emotional immaturity. Lack of warmup was seen to be a more important causal factor than fatigue. High rates occurring in random play, intramurals, and unorganized sport were the result of inadequate protection. Lack of qualified supervision, inadequate instruction, failure to enforce rules, poor equipment and mismatching of participants were also suggested causes.

Robey et al.(20) found that different types of protective equipment predisposed a player to injury and influenced the severity of the injury. Many injuries were reported to result from poor care of fields and facilities. Three-fourths of the injuries resulted from body contact with another player or contact with an object.

Worick(21) attempted to define, in general terms, the causes of athletic injury. Causes were comprised of inadequate knowledge concerning injuries, insufficient skill or performance beyond the ability of the athlete, environ-

mental hazards, improper attitudes, habits, or play, and unsafe behavior.

Summary of Review of Literature

Incidence of Injury

There was a definite correlation between the increase in injury rate and the increase in age-grade level (2, 4, 5).

At the elementary level, free play, gymnastics, and unorganized activity accounted for the majority of the injuries. Noon hour, morning recess, and afternoon recess proved to be the peak times of the day for injury. The peak age for injury appeared to be eleven, and males were injured more often than females. Some authors (3, 6, 8, 15) reported grade 2 to be a peak grade for injuries.

For junior high school, the majority of injuries occurred in gymnastics, track and field, volleyball, and basketball. In senior high school the majority of injuries were accounted for by gymnastics, track and field, basketball, and football. For all of secondary school the noon hour and after 4 pm were frequent periods of injury. The peak years were injury at the secondary level was 14 for males and 13 for females. There was no significant difference in incidence of injury between the sexes when male-oriented sports were eliminated. Grade 7 had the highest rate of injury. This declined in grades 8 and 9 but increased at the grade 10 level.

Physical education classes accounted for the highest rate of injury for all grades. On the grades 9 to 11 level, contact sports yielded the highest incidence of injury whereas on the grades 7 to 10 level, intramurals accounted for the highest incidence of injury. Less severe and fewer injuries occurred in intramurals than in inter-scholastic competition.

Nature of Injury

The most frequently injured body parts on the elementary level were the head, face, and teeth with injuries to the ankles and fingers also being quite frequent. The most common types of injuries were contusions, lacerations, dental attrition, and fractures. On the elementary level, the incidence of fractures increased with an increase in grade level.

The most commonly injured body parts on the junior high school level were the ankle, hand, knee, and face. The most common types of injuries were contusions, sprains, fractures, and strains. This grade level recorded the highest incidence of fractures.

On the senior high school level, the ankle, hand, knee, face, and back were the body parts most frequently injured. The most common types of injury were sprains, fractures, and strains.

Generally, with respect to types of injury, the

head was characterized by lacerations. The hands and fingers, foot, ankle, and leg were characterized by sprains and fractures.

Causes of Injury

In general terms, the causes of injury were listed to include improper coaching, poor quality of instruction of skills, inadequate facilities, inadequate or lack of equipment, poor physical conditioning causing fatigue, lack of adequate officiating, supervision or rule enforcement, insufficient skills levels, performance beyond the individual's capabilities, unsafe behavior and attitudes of the participant, mismatching of participants, and types of equipment employed.

Many injuries were caused by body contact, collisions with other players or objects, and falls. Climbing apparatus and sports equipment were areas where injuries frequently occurred.

For the elementary levels, the most common causes of injury were falls or trips, collisions between participants, blows delivered by objects, loss of balance where apparatus was concerned, and carelessness.

On the secondary levels, the main causes of injury were blows by an object, body contact, falls off of equipment, faulty facilities, faulty equipment, participation negligence, and the nature of the sport.

Causes of injury to females was similar to that of the males.

CHAPTER III

METHODS AND PROCEDURE

Methods

The survey technique was used in this study of the incidence and nature of injuries in organized and unorganized activity.

In Appendix A is found a copy of the injury report form used in this study. Instruction for completing the accident report form were given in the form of a brochure. The report form had been in the school system for several years so that ample time was given for personnel to become familiar with the form.

The school terms 1973-1974 and 1974-1975 were used for this study. The total population for the sample during these school years was 43,760. The study involved grades Kindergarten through grade 12 plus special education students in all the schools in the Calgary Roman Catholic Separate School District #1. The total sample of 1621 injured males (989) and females (632) were involved in this study.

The injury report form was completed by the coach, physical educator, or teacher at the time of the injury or when it was reported. The person completing the report form was usually the person who had assessed the injury. When necessary, the opinion of a physician or dentist was sought.

Additional information about the injury, if required, was provided and recorded through direct contact with the physician responsible for treatment.

The accident report form was made out in duplicate One copy was forwarded to the central school board office and one copy was retained at the school where the injury occurred.

Procedure

The forms were collected by the Calgary Roman Catholic Separate School District #1 and forwarded to S.W. Mendryk at the University of Alberta in Edmonton.

Statistical analysis was in the form of an SPSS computer program that gave the incidence totals and selected two-way cross-tabulations of the individual and grouped grades.

The Department of Physical Education at the University of Alberta is able to provide a full computer print-out of the results on request. A discussion of the results will be presented in Chapter IV.

CHAPTER IV

RESULTS AND DISCUSSION

Results

Tables of the results are found in Appendices C (grades kindergarten to 6) and D (grades 7 to 12).

Grades Kindergarten to 6

Sex: In elementary activities the boys were injured more often than the girls. During free play, the boys (63.3%) had more injuries than the girls (36.7%). An analysis of the distrubition of injuries during organized activity revealed that the boys (58.1%) received more injuries than the girls (41.9%). During games lessons the boys (60.0%) had more injuries than the girls (40.0%). However, in gymnastics lessons the girls (56.7%) accounted for more injuries than the boys (43.3%).

Month of Year: In elementary activities there was found to be an overall average of 37.6 accidents per month during free play activities. This ranged from a high of 51 accidents in the month of October to a low of 21 accidents in the month of June. In organized activity there was a fairly even distrubition throughout the school year with an overall average

of 33.2 injuries per month. The number of injuries ranged from 45 in October and January to 18 in December. During games lessons there was an average of 4.5 injuries per month. The number of injuries in games lessons ranged from 7 in the month of April to 1 in the month of September. In gymnastics lessons there was an average of 3 accidents per month. Several months recorded only 1 accident in gymnastics lessons. March was the month with the greatest number of accidents in gymnastics lessons (7).

Age: At the elementary level the 11 year old students had the greatest number of injuries in free play (18.8%), organized activities (18.4%), dance lessons (100.0%), games lessons (26.8%), and gymnastics lessons (58.6%). During free play the 10 year old students (17.7%) and the 7 year old students (17.4%) also had a high rate of injury. In organized activities the 9 year old students (17.4%) and 10 year old students (17.4%) had almost as high a rate of injury as the 11 year old students. The 10 year old students had the second highest rate of injury for games lessons (22.0%) and for gymnastics lessons (20.7%).

Grade: Grade 5 had the highest incidence of injury during free play (22.9%) and gymnastics lessons (46.7%).

Grade 6 has the highest incidence of injury during organized activities (21.8%) and games lessons (24.4%). Grade 5 had nearly the same number of injuries in games lessons (22.2%) as grade 6 and grade 6 students had almost the same number of injuries in gymnastics lessons (43.3%) as did the grade 5 students.

Time of Day: The greatest number of injuries on the elementary level occurred at recess times and the noon hour. The time period from 12 noon - 1 pm had the highest incidence of injury for free play (30.6%). The two time periods with the next highest rates of injury were 2 pm - 3 pm (24.7%) and 10 am - 11 am (20.7%). It was also observed that the time periods before school from 8 am - 9 am (8.9%) and after school from 3 pm - 4 pm (7.5%) accounted for a large number of injuries during free play. The time at which the most accidents occurred during organized activity was 2 pm - 3 pm (27.6%). This time period was closely followed by 12 noon - 1 pm (26.1%) and 10 am - 11 am (22.4%). Games lessons had the highest rate of incidence from 2 pm - 3 pm (24.4%) which was closely followed by 11 am - 12 noon (22.2%) and 1 pm - 2 pm (20.0%). The highest incidence of injury during gymnastics lessons was 1 pm - 2 pm (26.7%), 2 pm - 3 pm (26.7%), and 3 pm - 4 pm (23.3%).

Body Region Injured: Most injuries to the head (51.5%), face (54.4%), nose (56.0%), teeth (54.2%), forearm (61.1%), fingers (45.3%), chest (100.0%), back (58.8%), thigh (66.7%), and eye (50.0%) occurred during free play. During free play many injuries also occurred to the elbow (35.3%), wrist (37.5%), hand (44.1%), lower leg (33.3%), ankle (33.3%), and foot (25.7%). Most injuries to the neck (45.5%), upper arm (70.0%), elbow (47.1%), wrist (40.6%), hand (47.1%), abdomen (42.9%), buttocks (66.7%), groin (75.0%), knee (64.0%), lower leg (57.1%), ankle (47.6%), and foot (57.1%) occurred in organized activity. A high incidence of injury to the head (42.6%), face (39.8%), teeth (39.3%), shoulder (41.7%), finger (42.2%), and eye (40.0%) also occurred in organized activity.

Type of Injury: The most frequent types of injury during free play were open wounds (27.7%) and bone bruises (19.9%). Open wounds (32.5%) and bone bruises (18.4%) were also the most common types of injury for organized activities. During dance lessons the one injury reported was a sprain. During games lessons the most common type of injury was a bone bruise (28.9%). During gymnastics lessons the most common injury was a fracture (26.7%) with sprains (23.3%) and bone bruises (20.0%) also being quite common.

Probable Direct Cause: It seems that the greatest cause for accidents on the elementary level was a fall that was not due to any observed external factor. This was demonstrated at free play (46.6%), organized activities (42.0%), and games lessons (10.0%). The only area in which cause differed was the gymnastics lessons where the most common cause was a fall or loss of balance on apparatus.

Program Phase: At the elementary level, the majority of accidents during free play occurred before and after school and at noon (49.5%) and at recess (44.9%). These time periods also accounted for the greatest number of injuries during organized activity with recess periods (42.8%) having a greater number of injuries than before or after school or at noon (29.2%). The injuries during games lessons (97.8%) and gymnastics lessons (93.3%) mostly occurred during physical education instruction.

Facility Area: The facility area where the majority of the injuries took place on the elementary level was the playing field or tarmac (52.3%). Of the injuries on the playing field or tarmac, most occurred during free play (61.0%) and organized activities (35.8%). The facility area where many of the other accidents occurred was the gymnasium (12.4%). Of these accidents, most occurred during

organized activity (32.0%), gymnastics lessons (28.9%), and games lessons (27.8%).

Grades 7 to 12

Sex: In activities on the junior and senior high school level, males (62.0%) were usually injured more often than females (38.0%). There were 3 activities in which males were the only ones injured: aquatics, bordenball, and ice hockey. In dance, females were the only ones to sustain any injuries. The females sustained more injuries than the males in gymnastics-tumbling (70.3%), other ice sports (60.0%), track and field (64.1%), and volleyball (68.4%). Both males and females sustained similar rates of injury in basketball, European handball-field hockey, gymnastics-apparatus, and racquet games. The males' incidence of injury was greater than the females' incidence of injury in tackle football (98.7%), floor hockey (67.7%), touch football (73.9%), soccer-speedball (83.3%), softball-baseball (75.0%), and wrestling and personal defence activities (96.6%).

Months of Year: Accidents tended to coincide with seasonal activities for the months of the school year. This coincidence was demonstrated in tackle football (September, October), ice hockey (September-February), other ice sports (September-March), softball-

baseball (April-June), track and field (April-June), and volleyball (September-December). Injuries in basketball, floor hockey, gymnastics-apparatus, gymnastics-tumbling, racquet games, and wrestling and personal defence activities were at a fairly consistent rate throughout the school year.

Age: In basketball the 15 year old students (27.1%) were injured more than the others. In tackle football the 16 year olds (33.8%) and the 15 year olds (32.5%) had the highest incidence of injury. In track and field the 13 and 14 year old students (28.2% each) had the highest rate of injury. With all other activities the incidence of injury was fairly equal between the ages of 12 and 17.

Grade: For the grades in which the injuries occurred in various activities, some of the activities had a fairly even rate of incidence through both junior and senior high school. This was demonstrated in basketball, European handball-field hockey, touch football, racquet games, volleyball, and wrestling and personal defence activities. Other activities seemed to have a higher incidence rate of injury at the junior high level. These activities included floor hockey (83.8%), gymnastics-apparatus (69.7%), gymnastics-tumbling (63.9%), other ice sports (85.7%), soccer-speedball (78.6%), softball-

baseball (100.0%), and track and field (87.2%). The only activity that demonstrated a higher incidence of injury at the senior high school level was tackle football (95.8%).

Time of Day: For the time of day in which the accidents occurred in the various activities it was found that in almost all the activities there was a fairly even distribution throughout the day. There were two exceptions to this finding. In gymnastics-apparatus there were more accidents from 10 am - 11 am (32.5%) than any other time. In tackle football, there were more injuries between 4 pm - 5 pm (31.6%) and between 5 pm - 6 pm (29.1%) than at any other time of the day.

Body Region Injured: Head injuries were common in gymnastics-apparatus (9.7%), tackle football (7.1%), track and field (7.1%), and floor hockey (6.2%). Facial injuries occurred most commonly in floor hockey (10.9%) and basketball (9.4%). Nose injuries were most common in gymnastics-apparatus (22.2%). Injuries to the teeth occurred most often in volleyball (11.1%), wrestling and personal defence (8.9%), and basketball (8.9%). Neck injuries occurred most often during gymnastics-apparatus (39.5%). Shoulder injuries were most frequent in tackle football (13.8%), gymnastics-tumbling (13.8%), and wrestling

and personal defence activities (13.8%). Elbow injuries occurred most frequently during gymnastics-apparatus activities (10.7%). This was also true for wrist injuries on the apparatus (12.5%) as well as basketball (8.3%) and tackle football (8.3%). These three areas of gymnastics-apparatus (7.5%), tackle football (7.5%) and basketball (5.7%) had the highest incidence of injury to the hand. Finger injuries occurred most commonly in basketball (11.1%) gymnastics-apparatus (8.3%), and tackle football (5.6%). Chest injuries happened most often on the gymnastics-apparatus (33.3%). A high incidence of back injuries occurred on the gymnastics-apparatus (19.0%) as well as in gymnastics-tumbling (16.7%) and tackle football (24.2%) where the greatest number of injuries to the lower leg (22.2%) also occurred. Ankle injuries most commonly occurred in basketball (27.3%) with tackle football (9.1%), track and field (9.1%), and volleyball (9.1%) combining to have the same total. Foot injuries occurred most often in gymnastics-apparatus (21.3%), basketball (17.0%), and gymnastics-tumbling (12.8%). Eye injuries occurred most commonly in floor hockey (12.1%).

Type of Injury: In dealing with the types of injuries as related to junior and senior high school activities, mention will be made of those activities where there

was a high incidence of injury overall or where there was a high incidence of a particularly serious injury in a particular activity. (In basketball, all types of injuries occurred except burns and concussions.) There was a high incidence of sprain (46.6%), fractures (13.7%), bone bruises (12.3%), muscle strain (6.8%), teeth loosened (5.5%), dislocation-separations (5.5%), and open wounds (5.5%). There was a high incidence of injuries to the teeth in European handball-field hockey (33.3%). In tackle football there was a wide range in the types of injuries reported. The injuries most often seen in tackle football were fractures (20.3%), muscle strain (20.3%), sprains (17.7%), bone bruises (15.2%), muscle bruises (11.4%) concussions (7.6%), and dislocations-separations (6.3%). Open wounds (45.2%), bone bruises (22.6%), and injuries to the teeth (12.9%) were most common in floor hockey. In touch football fractures (22.6%) and bone bruises (21.7%) were the two most frequently reported injuries. A variety of injuries was also reported in gymnastics-tumbling. The high incidence of injury was reported in fractures (20.0%), sprains (18.8%), bone bruises (18.8%), muscle strain (17.5%), dislocation-separations (10.0%), open wounds (8.7%), and concussions (7.6%). In gymnastics-tumbling there was a high incidence

of injury in muscle strains (35.1%), sprains (27.0%), fractures (10.8%). A wide range of injury types was also reported in track and field activities. The most common types of injuries were sprains (30.8%), muscle strains (20.5%), bone bruises (17.9%), open wounds (15.4%), muscle bruises (12.8%), fractures (10.3%), and concussions (5.1%). In volleyball there was a high incidence of injury involving sprains (39.5%), muscle strains (15.8%), and teeth injuries (13.2%). Wrestling and personal defence activities had a high incidence of injury in fractures (34.5%), bone bruises (17.2%), sprains (13.8%), and teeth injuries (13.8%).

Program Phase: For junior and senior high school activities, the phase in which most of the injuries took place was physical education instruction. The one exception to this was tackle football where most of the injuries (89.9%) were incurred during interscholastic activities. During interscholastic activities there was also a high incidence of injury in basketball (30.1%), gymnastics-apparatus (16.2%), gymnastics-tumbling (18.9%), track and field (43.6%), and volleyball (23.7%). The activities with a high incidence of injury in physical education instruction were basketball (47.9%), European handball-field hockey (83.3%), floor hockey (54.8%), touch

football (52.2%), gymnastics-apparatus (75.0%), gymnastics-tumbling (67.6%), ice hockey (66.7%), other ice sports (73.3%), racquet games (83.3%), soccer-speedball (72.2%), softball-baseball (62.5%), track and field (46.2%), volleyball (60.5%), and wrestling and personal defence activities (69.0%). The only notable incidence of injuries during intramurals was in basketball (8.7%), floor hockey (22.6%), volleyball (13.2%), and wrestling and personal defence activities (20.7%). Before or after school and noon for basketball (12.3%), there was also a high incidence of injury.

Facility Area: As might be expected, certain activities were limited to certain facility areas. All the aquatic injuries were incurred at the pool area. All the injuries in ice hockey occurred at the rink as did the majority of injuries in other ice sports (86.7%). The gymnasium was the area where most or all of the injuries occurred in basketball (100.0%), bordenball (100.0%), dance (100.0%), European handball-field hockey (75.0%), floor hockey (90.3%), gymnastics-apparatus (95.0%), gymnastics-tumbling (94.6%), racquet sports (75.0%), volleyball (100.0%), and wrestling and personal defence activities (89.7%). The playing field or tarmac was the area on which most of the injuries occurred in tackle football

(98.7%), touch football (82.6%), soccer-speedball (77.8%), softball-baseball (87.5%), and track and field (51.3%). In the area of track and field many of the injuries occurred in the gymnasium (33.3%).

Probable Direct Cause: For the probable direct causes of injury on the junior and senior high school levels, reference will be made to those activities in which the majority of injuries took place. In basketball a fall or trip that was not due to any observed external factor (34.2%), accidental collisions between participants (28.8%), a blow delivered by an object (21.9%), and body contact in the normal course of an activity (11.0%) were the main causes of injury. The main causes of injury in tackle football were body contact in the normal course of an activity (63.3%) and an accidental collision between participants (19.0%). In touch football the main cause of injury was an accidental collision between participants (43.5%). In gymnastics-apparatus the 2 main causes of injury were a fall or loss of balance where apparatus was concerned (52.8%), and a fall or trip not due to any observed external factor (13.5%). In gymnastics-tumbling the 2 main causes of injury were a fall or loss of balance on apparatus (20.5%) and strain or overexertion (17.9%). The main cause of injuries in other ice sports was a

fall or trip not due to any observed external factor (52.9%). In racquet sports, the main cause of injury was a blow delivered by an object (83.3%). The main cause of injuries in soccer-speedball was an accidental collision between participants (42.1%). A blow delivered by an object (75.0%) was responsible for the majority of the injuries in softball-baseball. In track and field events, the main causes of injury were a fall or loss of balance where apparatus was concerned (29.3%) and a fall or trip not due to any observed external factor (24.4%). The main causes of injury in volleyball were a blow delivered by an object (34.2%) and a fall or trip not due to any observed external factor (21.1%). The main cause of injury in wrestling and personal defence activities was body contact in the normal course of an activity (71.4%).

Mention must be made of the miscellaneous indoor and outdoor activities. These two areas accounted for over 38% of all the injuries on the junior and senior high school levels. Account can be made for 46 of the 103 outdoor injuries. These would probably be the injuries sustained on the ski areas. The 9 miscellaneous activities in outdoor physical education instruction may also be a part of these ski injuries along with the 35 injuries on field trips. The majority of the indoor activities

where injuries were sustained were in the classroom (48.1%) or before and after school or at noon (26.6%). It is unfortunate that the 34 injuries of a miscellaneous nature that occurred during the physical education instruction phase of the school program could not have been specified.

Discussion

Elementary Level

Free play or spontaneous activity accounted for 48.0% of all injuries on the elementary level. Organized activity such as seen at recess and noon hour accounted for 42.3% of all injuries at this level. In these two phases of the school program, over 90% of all injuries occurred. In the study done by Mendryk et al.(2), free play accounted for 60% of the injuries whereas only 4% of the injuries occurred in organized activity at noon or recess. In the study by Hartsell(1), free play accounted for 54.8% of the injuries and organized activity accounted for 23.5% of the injuries at the elementary level. There are two possible explanations for the difference in the two reported studies as compared to this study. Since the accident report forms were virtually identical, it is possible that the injuries as reported are accurate. However, an organized activity normally would have an adult in attendance to provide proper supervision for the activity. An organized activity of the student's own making would be difficult to classify. Thus, in an effort to look at free play with supervision as

oppposed to organized activity with supervision there is question concerning categorization.

Males were injured more often than females as was also reported in studies by Mendryk et al.(2) and Hartsell(1). In free play and organized activity the females had virtually the same number of injuries. In these two phases of the elementary program, the males had more injuries during free play activities. The higher incidence of male injury as compared to female injury could be due to the more aggressive behavior of the males. The high incidence of injury for both males and females during free play might indicate a need for closer supervision during these activities.

The months of June and December were low for injuries. This could be due to the reduction of activities during these months because of vacations or test times.

The eleven year old student tended to be injured more often than students at any other age on the elementary level. Eleven years of age is also when most students injured in this study were in grade 6. Thus, it would seem that the age of 11 is an age at which many students injure themselves which also coincides with their last year at the elementary level. No definite conclusion has been drawn as to why 11 year old students were injured more often than other students at the elementary level. Grade 5 and grade 6 recorded almost the same number of injuries. Similar results were reported by Hartsell(1) and Mendryk et al.(2). An interesting difference reported in this study is that at the

grade 3, or 8 year old level, the incidence of injury is much lower than the other grades on the elementary level with the exception of kindergarten. No reasonable explanation can be given for this difference.

Most accidents on the elementary level occurred between 2 pm - 3 pm (202), 12 noon - 1 pm (201), and 10 am - 11 am (155). This would correspond to times set aside for afternoon recess, noon hour, and morning recess, respectively. Almost identical results were reported by Mendryk et al.(2). Hartsell(1) reported similar results with morning recess ranked ahead of noon hour for incidence of injury.

Injuries to the head and neck region received 59.7% of all the injuries. The upper extremities received 23.5% of all injuries. The lower extremities accounted for 12.8% of all injuries. The trunk region accounted for 3.9% of all injuries. Similar results were also reported by Hartsell(1) and Mendryk et al.(2).

The most frequent type of injury was an open wound. This was also found to be true in several other studies(1, 2, 4, 5). Open wounds accounted for 25.7% of all injuries and bone bruises accounted for 17.9% of all injuries.

The facility area where 52.3% of all the injuries took place was the playing field or tarmac. This was by far the most dangerous area which has also been reported in studies by Hartsell(1) and Mendryk et al.(2). As was also reported by Mendryk et al.(2), the gymnasiun was the area

that ranked second for the most injuries with a reported 12.4% of all the injuries in this study. By the results of the study, it could be assumed that most of the activities during free play and organized activities took place on the playing field or tarmac.

Falls not due to any apparent cause accounted for 28.0% of the injuries on the elementary level. Accidental collisions between participants accounted for 18.3% of all injuries and ranked second and a blow by an object ranked third with 17.0% of all the injuries. Similar results were reported by Hartsell(1). Similar results were reported by Mendryk et al.(2).

Secondary Level

The males were injured more often than the females. The males were injured 24.0% more than the females on the secondary level. The injury rate for males at the elementary level was 20.2% more than females. These differences were both slightly lower than those reported in the study by Mendryk et al.(2).

September and October were the months during which 28.4% of all the injuries took place. Football accounted for 40.2% of all injuries during these two months. The two months that were low for incidence of injury were April with 5.8% of the injuries and June with 5.1% of all the injuries on the secondary level. The low incidence of reported injuries during these two months could be due to decreased students' participation in physical and athletic

as a result of seasonal vacations and/or examination periods. The range in incidence of injury for the other 6 months was from 9.0% to 11.7%. Many of the accidents reported for the months of the school year on the secondary level tended to coincide with seasonal activities.

There was a continual increase in the incidence of injury from age 11 to age 15 and then the incidence of injury decreased. Ages 13 to 15 accounted for 61.2% of all the injuries on the secondary level. Similar results were reported by Mendryk et al.(2).

Grades 7 to 10 accounted for 79.8% of all the injuries. Grade 8 had the highest incidence of injury. The incidence of injury decreased for grades 9 and 10. In grades 11 and 12 there was a notable drop in the incidence of injury. The decrease in incidence of injury for grades 11 and 12 may have resulted from a lack of compulsory physical education instruction after grade 10. Similar results were reported by Mendryk et al.(2) and Hartsell(1).

The most hazardous times of the day on the secondary level were 10 am - 11 am and 12 noon - 1 pm. These two times accounted for 28.4% of all the injuries. Between 9 am and 3 pm, 71.5% of all the injuries occurred on the secondary level. After 3 pm accounted for 20.8% of all the injuries. The large number of injuries after 3 pm may be attributed, in part, to the interscholastic programs of the schools. Similar results were reported by Mendryk et al.(2).

The head and neck region accounted for 33.7% of all the injuries on the secondary level. The upper extremities accounted for 31.7% of all the injuries. The lower extremities accounted for 26.9% of all the injuries. The trunk region accounted for 7.7% of all the injuries.

The most common type of injury on the secondary level was open wounds which accounted for 18.0% of all the injuries. Sprains were a common injury with an incidence rate of 17.0%. Bone bruises had a 13.7% rate of incidence and fractures had a 12.1% rate of incidence. Open wounds, sprains, bone bruises and fractures accounted for 60.8% of all the injuries. A high incidence of sprains and fractures was also reported by Hartsell(1) and Mendryk et al.(2).

The facility area that accounted for 43.6% of all the injuries was the gymnasium. The playing field or tarmac accounted for 21.4% of all injuries. Similar results were reported by Mendryk et al.(2). The ski area accounted for 4.7% of all the injuries.

A fall not due to any apparent reason or off apparatus accounted for 31.0% of all injuries. Body contact with an object or another individual accounted for 42.9% of all injuries.

The most hazardous phase of the school program was physical education instruction which accounted for 38.0% of all injuries. Physical education and its related activities accounted for 61.5% of all the injuries on the secondary level. The 3 most hazardous activities on the

secondary level were gymnastics-apparatus, tackle football, and basketball. These 3 activities accounted for 28.2% of all the injuries. For gymnastics, consideration might be given not only to the level of activity that the student is involved in but the level of competence of the instructor. This would apply to instruction but more importantly to spotting techniques. Sprains of ankles and fingers in basketball seem to be a natural hazard of the game. Consideration might be given to proper ankle support in basketball and football where pivotal action appears to be necessary.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The purpose of the study was to determine the incidence and nature of injuries occurring to participants in physical education, sports clubs, intramural and extramural activities sponsored by the Calgary Roman Catholic Separate School District #1 so that practical recommendations could be made in order to reduce the number and severity of injuries.

The sample consisted of injuries to 1621 students who attended school over two academic terms during 1973-1974 and 1974-1975. These injuries were reported by physical education instructors, coaches, and teachers on an accident report form (Appendix A). The accident report was filled out in duplicate with one copy retained by the school and the other copy sent to the Calgary Roman Catholic Separate School Board. The forms sent to the school board office were forwarded to the University of Alberta for analysis. An SPSS program was used to tabulate the possible 2-way cross tabulations between specific sections of the report form. The 2-way cross tabulations, specific to elementary and junior-senior activities were analysed.

Males were injured more often than females. Age 11 had the highest incidence of injury for the total population. Most injuries occurred at recess and noon hours. The head and facial region was injured more often than any other body part. Open wounds were the most common type of injury. For the total population, the playing field-tarmac was the most hazardous facility area with the gymnasium being ranked second. Falls of various nature accounted for the single most common cause of injury. The program phases of before or after school, noon hour play, and recess for the total school population accounted for the majority of injuries.

Grades Kindergarten to 6

The majority of injuries on the elementary level were sustained by males.

Recess was the program phase that accounted for the most injuries. Before or after school and noon hour play was ranked second. The time period from 2 pm - 3 pm, during which afternoon recess would probably occur, accounted for 202 injuries with the noon hour from 12 noon - 1 pm accounting for 201 of the total of 778 injuries reported.

The month of October had the highest incidence of injury with November and January ranked second and third respectively.

Eleven year old students were injured more

frequently than any others. Ten year old students were ranked second in the number of injuries. Grade 5 accounted for 161, and grade 6 for 158 of the total of 739 injuries recorded.

The head was the body region most commonly injured and open wounds or lacerations were the most common type of injury.

The playing field or tarmac was the most hazardous facility area on the elementary level.

The most common probable cause of injury was a fall or trip not due to any observed external factor. A blow by an object ranked a distant second.

Grades 7 to 12

Males were injured more frequently than females on the junior-senior high school level.

The month of September had the greatest number of injuries with October ranking a close second.

Students from ages 13 to 15 sustained more injuries than at any other age on the secondary level of school. Junior high school students sustained more injuries than senior high school students. Grade 10 students had the highest incidence of injury on the senior high school level.

The time periods between 10 am - 11 am and 12 noon - 1 pm accounted for the highest incidence of injury. Physical education instruction was the program phase during which most accidents occurred.

The head, finger, and ankle were the individual body parts that had the highest incidence of injury respectively ranked from first to third. As a general body region, the head and neck areas were injured more frequently than any other body region. The most common type of injury was open wounds or lacerations with sprains ranking a close second.

The facility area that was most hazardous on the secondary level was the gymnasium. The playing field-tarmac ranked a distant second.

The most common probable cause of injury was a fall or trip not due to any observed external factor. A blow by an object was ranked second for frequency of injury.

Conclusions

Within the limitations of the study, the following conclusions have been made.

1. Males were injured more often than females.
2. At the elementary level, recess and noon hours were the most dangerous times of the day.
3. The highest rate of injury occurred from grades 5 to 9.
4. The area of the body above the shoulders sustained the greatest number of injuries.
5. At the elementary level, the playing field or tarmac was the most hazardous facility area. On the secondary level, the most hazardous facility area was the gymnasium.

6. At the secondary level, physical education and its related activities accounted for the greatest number of injuries. Specifically, gymnastics, football, and basketball were the most hazardous sports.

Recommendations

To help reduce the number and severity of injuries to the school age athlete, the following recommendations are made.

1. Insure that proper and adequate supervision and/or officiating is provided for all activities on the playing field or in the gymnasium.
2. Teachers and coaches should have a knowledge of the proper methods of the assessment of injuries and in the emergency care of injuries once they have been assessed.
3. Football, as an activity, should be examined with emphasis on those areas where serious injury may be sustained. A review of the rules may be necessary.
4. Instructors in gymnastics should have a designated level of competency before being permitted to instruct in a school program.

The following recommendations have been made for revisions of the accident report form.

1. For miscellaneous indoor and outdoor activities at the secondary level, more specific categorization of injuries should be made on the accident report form.
2. Allow for a section that deals specifically with multiple injuries.

3. Combine the various lessons under elementary activities into one heading of physical education instruction. Categorize the free play and organized activities into more descriptive and specific headings, such as unorganized free play, teacher organized activity, student organized activity, team sport activity, and non-team sport activity.
4. Include separate categories for before school, after school, and noon hour periods in the program phase.
5. Allow for a category that states the degree of supervision provided at the time of injury.

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APPENDIX A

INJURY REPORT FORM

CALGARY ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT #1

ACCIDENT REPORT FORM

School _____ Date _____

Name of Pupil _____

Does pupil have school accident insurance? _____ Type _____
Does pupil have other accident insurance? _____ Type _____
Was a physician/hospital called? _____ Name _____

INDICATE THE ONE (OR MORE) MOST APPROPRIATE STATEMENT(S) FROM EACH OF THE FOLLOWING SECTION.

A. Sex ( )6. male ( )7. female

B. Age
( )8.	six and younger	( )13.	eleven	( )18.	sixteen
( )9.	seven	( )14.	twelve	( )19.	seventeen
( )10.	eight	( )15.	thirteen	( )20.	eighteen
( )11.	nine	( )16.	fourteen	( )21.	nineteen
( )12.	ten	( )17.	fifteen	( )22.	twenty plus

C. Grade
( )23.	kindergarten	( )28.	five	( )33.	ten
( )24.	one	( )29.	six	( )34.	eleven
( )25.	two	( )30.	seven	( )35.	twelve
( )26.	three	( )31.	eight	( )36.	special education
( )27.	four	( )32.	nine	( )i.	other_____

D. Time of Day
( )37.	before 8:00 a.m.	( )43.	1:00 - 1:59
( )38.	8:00 - 8:59	( )44.	2:00 - 2:59
( )39.	9:00 - 9:59	( )45.	3:00 - 3:59
( )40.	10:00 - 10:59	( )46.	4:00 - 4:59
( )41.	11:00 - 11:59	( )47.	5:00 - 5:59
( )42.	12:00 - 12:59	( )48.	after 6:00

E. Body Region(s) Injured

( )49.	head	( )56.	elbow	( )63.	back
( )50.	face	( )57.	forearm	( )64.	buttocks
( )51.	nose	( )58.	wrist	( )65.	groin
( )52.	teeth	( )59.	hand	( )66.	thigh
( )53.	neck	( )60.	finger	( )67.	knee
( )54.	shoulder	( )61.	chest	( )68.	lower leg
( )55.	upper arm	( )62.	abdomen	( )69.	ankle
				( )70.	foot

F. Type(s) of Injury

( )71. abrasion -scrape
( )72. laceration/incision/puncture - an open wound
( )73. burn
( )74. bone bruise - swelling and/or discoloration of bony area
( )75. muscle bruise - swelling and/or discoloration of muscular area
( )76. muscle strain (pull or tear) - due to use rather than blow
( )77. sprain - twisting or moving of a joint beyond normal range
( )78. dislocation/separation - deformity of a joint
( )79. fracture
( )80. concussion - temporary loss of orientation or unconsciousness
( )6. nose bleed
( )7. teeth loosened or broken
( )i. other _____

G. Facility Area

( )8. gymnasium
( )9. playing field/tarmac
( )10. classroom/lab
( )11. playground climbing/ play apparatus
( )12. hallway-stairway
( )13. rink
( )14. in transit to or from school
( )15. locker room/shower
( )i. other _____

H. Probable Direct Cause

( )17. blow delivered by an object (ball, bat, etc.)
( )18. fall/trip not due to any observed external factor
( )19. fall or loss of balance where apparatus concerned
( )20. obstruction on playing area (object or spectator)
( )21. accidental collision between participants
( )22. body contact (not considered a collision) in the normal course of an activity
( )23. strain or overexertion
( )24. carelessness on part of pupil
( )25. no clear or apparent cause
( )i. other _____

I. Program Phase

( )26. physical education instruction
( )27. intramural/house league
( )28. interscholastic game-practice
( )29. recess
( )30. before/after school, noon hour play
( )31. classroom/lab instruction

SECTION J APPLIES TO DIVISION I AND II ONLY. ALL OTHERS COMPLETE SECTION K.

J. Activity (elementary)

( )32. free play - spontaneous activity
( )33. organized activity - recess, noon hour, etc.
( )34. dance lesson
( )35. games lesson
( )36. gymnastics lesson

K. Activity (junior and senior high)

( )37. aquatics
( )38. basketball
( )39. bordenball
( )40. dance
( )41. European handball, field ball, field hockey
( )42. football (tackle)
( )43. floor hockey
( )44. football (flag, touch)
( )45. gymnastics (apparatus)
( )46. gymnastics (free exercise, tumbling)
( )47. ice hockey
( )48. ice sports (other)
( )49. racquet games
( )50. soccer or speedball
( )51. softball or baseball
( )52. track and field/cross country
( )53. volleyball
( )54. wrestling and personal defence
( )55. miscellaneous indoor activities (specify) _____
( )56. miscellaneous outdoor activities (specify) _____

Brief Description of Accident: _____

_____

_____

Names: Principal _____

Teacher _____

Witness(es) _____

APPENDIX B

TABLES FOR INJURY TOTALS

AND

RATE OF INJURY

FOR TOTAL POPULATION

TABLE I

FREQUENCY OF INJURIES ACCORDING TO SEX

FOR TOTAL POPULATION

SEX	NUMBER OF INJURIES	PERCENT OF INJURIES
Male	989	61.0%
Female	632	39.0%
Totals	1621	100.0%

TABLE II

FREQUENCY OF INJURIES ACCORDING TO AGE

FOR TOTAL POPULATION

AGE	NUMBER OF INJURIES	PERCENT OF INJURIES
6 or less	106	6.7%
7	116	7.4%
8	75	4.8%
9	107	6.7%
10	137	8.7%
11	181	11.5%
12	158	10.1%
13	167	10.6%
14	166	10.6%
15	169	10.8%
16	109	6.9%
17	56	3.6%
18	20	1.2%
19	1	0.1%
20 or more	4	0.3%
Totals	1572	100.0%

TABLE III

FREQUENCY OF INJURIES ACCORDING TO GRADE

FOR TOTAL POPULATION

GRADE	NUMBER OF INJURIES	PERCENT OF INJURIES
Kindergarten	15	1.0%
1	116	7.5%
2	103	6.6%
3	84	5.4%
4	105	6.8%
5	163	10.5%
6	164	10.6%
7	157	10.1%
8	163	10.5%
9	159	10.2%
10	145	9.3%
11	98	6.3%
12	52	3.3%
Special Education	25	1.6%
Staff	4	0.3%
Totals	1553	100.0%

TABLE IV

FREQUENCY OF INJURIES ACCORDING TO TIME OF DAY

FOR TOTAL POPULATION

TIME	NUMBER OF INJURIES	PERCENT OF INJURIES
Before 8 am	2	0.1%
8 am - 9 am	83	5.2%
9 am - 10 am	108	6.7%
10 am - 11 am	271	16.8%
11 am - 12 noon	132	8.2%
12 noon - 1 pm	319	19.8%
1 pm - 2 pm	135	8.4%
2 pm - 3 pm	297	18.5%
3 pm - 4 pm	132	8.2%
4 pm - 5 pm	70	4.4%
5 pm - 6 pm	40	2.5%
After 6 pm	20	1.2%
Totals	1609	100.0%

TABLE V

FREQUENCY OF INJURIES ACCORDING TO BODY REGION INJURED

FOR TOTAL POPULATION

BODY REGION	NUMBER OF INJURIES	PERCENT OF INJURIES	ADJUSTED PERCENTAGE
Head	352	21.7%	19.6%
Face	169	10.4%	9.3%
Nose	53	3.3%	3.0%
Teeth	135	8.3%	7.5%
Neck	49	3.0%	2.7%
Shoulder	53	3.3%	3.0%
Upper Arm	24	1.5%	1.3%
Elbow	46	2.8%	2.5%
Forearm	39	2.4%	2.2%
Wrist	80	4.9%	4.4%
Hand	87	5.4%	4.8%
Finger	173	10.7%	9.6%
Chest	14	0.9%	0.8%
Abdomen	15	0.9%	0.8%
Back	59	3.6%	3.2%
Buttocks	12	0.7%	0.6%
Groin	7	0.4%	0.4%
Thigh	26	1.6%	1.4%
Knee	87	5.4%	4.8%
Lower Leg	48	3.0%	2.7%
Ankle	123	7.6%	6.8%
Foot	82	5.1%	4.6%
Eye	73	4.5%	4.0%
Totals	1806*	111.4%	100.0%

*Totals in excess of 100% due to multiple injuries.

TABLE VI

FREQUENCY OF INJURY ACCORDING TO TYPE OF INJURY FOR TOTAL POPULATION

TYPE OF INJURY	NUMBER OF INJURIES	PERCENT OF INJURIES	ADJUSTED PERCENTAGES
Scrape-Abrasion	118	7.3%	6.5%
Laceration-Open Wound	394	24.3%	21.7%
Burn	12	0.7%	0.6%
Bone Bruise	287	17.7%	15.8%
Muscle Bruise	113	7.0%	6.2%
Muscle Strain	99	6.1%	5.4%
Sprain	222	13.7%	12.2%
Dislocation-Separation	50	3.1%	2.8%
Fracture	189	11.7%	10.4%
Concussion	68	4.2%	3.7%
Nose Bleed	31	1.9%	1.7%
Teeth Loosened or Broken	132	8.1%	7.2%
Others	106	6.5%	5.8%
Totals	1821*	112.3%	100.0%

*Totals in excess of 100% due to multiple injuries.

TABLE VII

FREQUENCY OF INJURY ACCORDING TO FACILITY AREA WHERE ACCIDENT OCCURRED FOR TOTAL POPULATION

FACILITY AREA	NUMBER OF INJURIES	PERCENT OF INJURIES
Gymnasium	461	28.5%
Playing field-Tarmac	585	36.3%
Classroom-Laboratory	177	11.0%
Playground climbing-Play apparatus	74	4.6%
Hallway-Stairway	112	6.9%
Rink	36	2.2%
In transit to or from school	31	1.9%
Locker Room-Shower-Restroom	9	0.6%
Pool	4	0.2%
Other	80	5.0%
Ski areas	46	2.8%
Totals	1615	100.0%

TABLE VIII

FREQUENCY OF INJURY ACCORDING TO PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

PROBABLE CAUSE	NUMBER OF INJURIES	PERCENT OF INJURIES	ADJUSTED PERCENTAGES
Blow delivered by an object	264	16.3%	15.6%
Fall or trip not due to any observed external factor	403	24.9%	23.7%
Fall or loss of balance where apparatus concerned	128	7.9%	7.5%
Obstruction on playing area	37	2.3%	2.2%
Accidental collision between participants	250	15.4%	14.7%
Body contact in the normal course of activity	148	9.1%	8.7%
Strain or over-exertion	33	2.0%	1.9%
Carelessness on part of pupil	178	11.0%	10.5%
No clear or apparent cause	41	2.5%	2.4%
Animal bites	14	0.9%	0.9%
Fights	57	3.5%	3.3%
Other	146	9.0%	8.6%
Totals	1699*	104.8%	100.0%

*Totals in excess of 100% due to multiple causes.

TABLE IX

FREQUENCY OF INJURY ACCORDING TO PROGRAM PHASE FOR TOTAL POPULATION

PROGRAM PHASE	NUMBER OF INJURIES	PERCENT OF INJURIES
Physical education instruction	409	25.3%
Intramurals - house leagues	61	3.8%
Interscholastic game - practice	156	9.7%
Recess	330	20.4%
Before or after school, noon hour play	432	26.8%
Classroom-laboratory instruction	169	10.5%
Field trips	57	3.5%
Totals	1614	100.0%

TABLE X

FREQUENCY OF INJURY ACCORDING TO ELEMENTARY ACTIVITIES FOR ELEMENTARY POPULATION

ELEMENTARY ACTIVITY	NUMBER OF INJURIES	PERCENT OF INJURIES
Free play - spontaneous activity	376	48.0%
Organized activity - recess, noon	332	42.3%
Dance lesson	1	0.1%
Games lesson	45	5.8%
Gymnastics lesson	30	3.8%
Totals	784	100.0%

TABLE XI

FREQUENCY OF INJURY ACCORDING TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR GRADE SEVEN TO TWELVE

ACTIVITY	NUMBER OF INJURIES	PERCENT OF INJURIES
Aquatics	2	0.2%
Basketball	73	8.9%
Bordenball	1	0.1%
Dance	3	0.4%
European handball, field ball, field hockey	12	1.5%
Tackle football	79	9.6%
Floor hockey	31	3.8%
Touch football	23	2.8%
Gymnastics - apparatus	80	9.7%
Gymnastics - tumbling	37	4.5%
Ice hockey	6	0.7%
Other ice sports	15	1.8%
Racquet games	12	1.5%
Soccer - Speedball	18	2.2%
Softball - Baseball	8	1.0%
Track and field - Cross country	39	4.7%
Volleyball	38	4.6%
Wrestling - Personal defence	29	3.5%
Miscellaneous indoor activities	215	26.0%
Miscellaneous outdoor activities	103	12.5%
Totals	824	100.0%

APPENDIX C

TABLES FOR THE KINDERGARTEN TO SIXTH GRADE POPULATIONS

TABLE XII

FREQUENCY OF INJURY AS RELATED TO ELEMENTARY ACTIVITIES FOR MALES AND FEMALES

ACTIVITY	MALES	FEMALES	TOTALS
Free play	238	138	376
Organized activity	193	139	332
Dance lesson	0	1	1
Games lesson	27	18	45
Gymnastics lesson	13	17	30
Totals	471	313	784

TABLE XIII

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR PROGRAM PHASE

ACTIVITY	PROGRAM PHASE							
	Physical education instruction	Intramurals	Interscholastics	Recess	Before, after school, noon hour play	Classroom laboratory	Field trips	Totals
Free play	6	2	0	168	185	10	3	374
Organized activity	17	15	1	142	97	44	16	332
Dance lesson	1	0	0	0	0	0	0	1
Games lesson	44	0	0	1	0	0	0	45
Gymnastics lesson	28	1	0	0	1	0	0	30
Totals	96	18	1	311	283	54	19	782

TABLE XIV

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR MONTHS OF SCHOOL YEAR

ACTIVITY	MONTH										
	January	February	March	April	May	June	September	October	November	December	Totals
Free play	38	35	36	32	33	21	47	51	50	33	376
Organized activity	45	38	29	31	40	22	28	45	36	18	332
Dance lesson	0	0	0	1	0	0	0	0	0	0	1
Games lesson	4	6	2	7	5	6	1	6	5	3	45
Gymnastics lesson	5	5	[illegible]	3	1	2	1	1	4	1	30
Totals	92	84	74	74	79	51	77	103	95	55	784

TABLE XV

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR AGE

ACTIVITY	AGE										
	Six or less	Seven	Eight	Nine	Ten	Eleven	Twelve	Thirteen	Fourteen	Seventeen	Totals
Free play	54	64	43	43	65	69	23	4	1	1	367
Organized activity	49	43	26	56	56	59	28	3	1	0	321
Dance lesson	0	0	0	0	1	0	0	0	0	0	1
Games lesson	2	6	4	4	9	11	4	1	0	0	41
Gymnastics lesson	0	1	2	3	6	17	0	0	0	0	29
Totals	105	114	75	106	137	156	55	8	2	1	759

TABLE XVI

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR GRADE

ACTIVITY	GRADE								
	Kindergarten	One	Two	Three	Four	Five	Six	Special Education	Totals
Free play	8	62	58	42	41	84	63	7	365
Organized activity	6	52	37	37	55	53	70	8	318
Dance lesson	0	0	0	0	0	0	1	0	1
Games lesson	1	1	6	4	7	10	11	4	44
Gymnastics lesson	0	0	1	1	1	14	13	0	30
Totals	15	115	102	84	104	161	158	19	758

TABLE XVII

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR TIME OF DAY

ACTIVITY	TIME OF DAY										
	8 am to 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	Totals
Free play	33	5	77	9	114	11	92	28	3	0	372
Organized activity	7	6	74	17	86	27	91	15	5	2	330
Dance lesson	0	0	0	0	0	0	0	1	0	0	1
Games lesson	0	4	4	10	0	9	11	7	0	0	45
Gymnastics lesson	0	2	0	4	1	8	8	7	0	0	30
Totals	40	17	155	40	201	55	202	58	8	2	778

TABLE XVIII

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR BODY PART

ACTIVITY	BODY PART											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper arm	Elbow	Forearm	Wrist	Hand	Finger
Free play	121	56	14	48	4	13	2	6	11	12	15	29
Organized activity	100	41	8	35	5	10	7	8	3	13	16	27
Dance lesson	0	0	0	0	0	0	0	0	0	0	0	0
Games lesson	11	4	1	4	1	0	1	2	1	3	2	6
Gymnastics lesson	3	2	2	2	1	1	0	1	3	4	1	2
Totals	235	103	25	89	11	24	10	17	18	32	34	64

TABLE XVIII (continued)

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR BODY PART

ACTIVITY	BODY PART											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Free play	2	2	10	1	1	4	6	7	7	9	20	400
Organized activity	0	3	4	2	3	2	16	12	10	20	16	361
Dance lesson	0	0	0	0	0	0	0	0	0	1	0	1
Games lesson	0	1	0	0	0	0	1	1	2	3	3	47
Gymnastics lesson	0	1	3	0	0	0	2	1	2	2	1	34
Totals	2	7	17	3	4	6	25	21	21	35	40	843*

*Number due to multiple injuries.

TABLE XIX

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR TYPE OF INJURY

ACTIVITY	TYPE OF INJURY													
	Abrasion-scrape	Laceration-Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Others	Totals
Free play	33	104	1	75	21	6	23	8	34	15	11	45	32	408
Organized Activity	42	108	1	61	19	9	19	4	28	13	5	35	24	368
Dance Lesson	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Games Lesson	6	7	0	13	7	0	8	1	5	3	0	4	1	55
Gymnastics Lesson	1	3	0	6	3	1	7	1	8	0	1	2	0	33
Totals	82	222	2	155	50	16	58	14	75	31	71	86	57	865*

*Number due to multiple injuries.

TABLE XX

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR FACILITY AREA

ACTIVITY	FACILITY AREA											
	Gymnasium	Playing field-tarmac	Classroom-laboratory	Playground climbing - play apparatus	Hallway-stairway	Rink	In transit to or from school	Lockerroom-shower-restroom	Pool	Other	Ski area	Totals
Free play	10	249	16	35	27	0	8	2	1	24	2	374
Organized activity	31	146	51	30	22	10	4	2	0	24	10	330
Dance lesson	1	0	0	0	0	0	0	0	0	0	0	1
Games lesson	27	12	0	1	0	5	0	0	0	0	0	45
Gymnastics lesson	28	1	0	0	1	0	0	0	0	0	0	30
Totals	97	408	67	66	50	15	12	4	1	48	12	780

TABLE XXI

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR PROBABLE DIRECT CAUSE

ACTIVITY	PROBABLE DIRECT CAUSE					
	Blow delivered by an object	Fall or trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity
Free play	62	102	11	13	72	20
Organized activity	55	92	17	10	62	16
Dance lesson	0	0	0	0	0	1
Games lesson	11	22	0	2	9	1
Gymnastics lesson	5	3	12	1	0	1
Totals	133	219	40	26	143	39

TABLE XXI (continued)

FREQUENCY OF INJURIES AS RELATED TO ELEMENTARY ACTIVITIES FOR PROBABLE DIRECT CAUSE

ACTIVITY	PROBABLE DIRECT CAUSE						
	Strain or overexertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Free play	4	43	5	29	8	26	395
Organized activity	1	38	7	37	2	13	350
Dance lesson	0	0	0	0	0	0	1
Games lesson	0	0	0	4	0	0	49
Gymnastics lesson	1	1	1	5	0	0	30
Totals	6	82	13	75	10	39	825*

*Number due to multiple causes.

APPENDIX D

TABLES FOR THE SEVENTH TO TWELTH GRADE POPULATIONS

TABLE XXII

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR MALES AND FEMALES

ACTIVITY	SEX		
	Males	Females	Totals
Aquatics	2	0	2
Basketball	39	34	73
Bordenball	1	0	1
Dance	0	3	3
European handball - field ball - field hockey	7	5	12
Football - tackle	78	1	79
Floor hockey	21	10	31
Football, touch, flag	17	6	23
Gymnastics - apparatus	38	42	80
Gymnastics - free exercise, tumbling	11	26	37

TABLE XXII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR MALES AND FEMALES

ACTIVITY	SEX		
	Males	Females	Totals
Ice hockey	6	0	6
Other ice sports	6	9	15
Racquet sports	6	6	12
Soccer - Speedball	15	3	18
Softball - Speedball	6	2	8
Track and field - Cross country	14	25	39
Volleyball	12	26	38
Wrestling - Personal defence	28	1	29
Miscellaneous indoor activities	146	69	215
Miscellaneous outdoor activities	58	45	103
Totals	511	313	824

TABLE XXIII

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR MONTHS OF THE SCHOOL YEAR

ACTIVITY \ MONTH	January	February	March	April	May	June	September	October	November	December	
Aquatics	0	0	1	0	0	0	0	1	0	0	2
Basketball	15	12	7	2	4	3	4	1	10	15	73
Bordenball	0	0	1	0	0	0	0	0	0	0	1
Dance	0	1	0	1	0	0	0	1	0	0	3
European handball - field ball - field hockey	0	3	0	0	1	1	0	5	2	0	12
Football - tackle	0	0	0	0	0	1	40	37	1	0	79
Floor hockey	4	0	4	2	5	1	5	4	4	2	31
Football - touch, flag	0	0	0	1	4	0	14	3	1	0	23
Gymnastics - apparatus	6	17	25	10	2	0	1	1	10	8	80
Gymnastics - free exercise, tumbling	2	8	9	3	3	0	0	3	5	4	37

TABLE XXIII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR MONTHS OF THE SCHOOL YEAR

ACTIVITY \ MONTH	January	February	March	April	May	June	September	October	November	December	Totals
Ice Hockey	0	1	0	0	0	0	1	1	1	2	6
Other ice sports	3	1	4	0	0	0	1	0	4	2	15
Racquet sports	1	2	1	0	1	2	2	0	1	2	12
Soccer - Speedball	0	0	1	1	4	4	4	3	1	0	18
Softball - Baseball	0	0	0	1	2	4	0	1	0	0	8
Track and field - Cross country	0	0	0	4	26	6	3	0	0	0	39
Volleyball	1	0	2	0	0	1	6	16	9	3	38
Wrestling - Personal defence	2	3	6	7	4	2	1	1	2	1	29
Miscellaneous indoor activities	32	17	22	12	25	12	24	31	24	16	215
Miscellaneous outdoor activities	16	13	9	4	15	5	16	3	3	19	103
Totals	82	78	92	48	96	42	122	112	78	74	824

TABLE XXIV

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR AGE

ACTIVITY \ AGE	Ten	Eleven	Twelve	Thirteen	Fourteen	Fifteen	Sixteen	Seventeen	Eighteen	Nineteen	Twenty plus	Totals
Aquatics	0	0	0	0	0	1	0	0	1	0	0	2
Basketball	0	0	6	13	11	19	10	8	3	0	0	70
Bordenball	0	0	0	0	0	1	0	0	0	0	0	1
Dance	0	1	0	0	0	1	1	0	0	0	0	3
European handball - field ball - field hockey	0	0	0	3	0	3	3	1	1	0	0	11
Football - tackle	0	1	2	1	8	25	26	10	3	1	0	77
Floor hockey	0	1	7	8	8	6	1	0	0	0	0	31
Football - touch, flag	0	0	4	2	3	5	3	2	3	0	0	22
Gymnastics - apparatus	1	1	14	17	17	17	6	5	0	0	0	78
Gymnastics - free exercise, tumbling	0	1	5	9	6	9	6	0	0	0	0	36

TABLE XXIV (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR AGE

ACTIVITY \ AGE	Ten	Eleven	Twelve	Thirteen	Fourteen	Fifteen	Sixteen	Seventeen	Eighteen	Nineteen	Twenty plus	Totals
Ice hockey	0	0	1	1	1	2	0	0	1	0	0	6
Other ice sports	0	1	1	4	5	2	2	0	0	0	0	15
Racquet sports	0	0	1	2	2	2	2	1	0	0	0	12
Soccer - Speedball	0	3	2	2	3	4	3	1	0	0	0	18
Softball - Baseball	0	0	0	5	1	1	0	0	0	0	0	7
Track and field - Cross country	0	1	6	11	11	6	2	1	1	0	0	39
Volleyball	0	1	8	6	7	7	5	1	2	0	1	38
Wrestling - Personal defence	0	0	3	1	11	9	4	0	0	0	0	28
Miscellaneous indoor activities	0	9	27	51	47	37	21	9	2	0	2	205
Miscellaneous outdoor activities	0	1	15	23	22	11	13	11	3	0	1	100
Totals	1	21	102	159	163	168	108	52	20	1	4	799

TABLE XXV

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR GRADE

ACTIVITY	GRADE								
	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Student	Staff	Totals
Aquatics	0	0	0	0	2	0	0	0	2
Basketball	8	14	16	18	8	8	0	0	72
Bordenball	0	0	1	0	0	0	0	0	1
Dance	1	0	0	2	0	0	0	0	3
European handball - field ball - field hockey	0	3	1	4	3	1	0	0	12
Football - tackle	0	2	1	29	28	12	0	0	72
Floor hockey	9	7	8	4	1	0	0	0	29
Football - touch, flag	2	2	5	3	2	3	0	0	17
Gymnastics - apparatus	18	17	18	14	8	1	0	0	76
Gymnastics - free exercise, tumbling	11	6	6	10	3	0	0	0	36

TABLE XXV (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR GRADE

ACTIVITY \ GRADE	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Student	Staff	Totals
Ice hockey	1	0	2	1	0	0	0	0	4
Other ice sports	2	6	4	1	1	0	0	0	14
Racquet sports	2	1	2	3	3	1	0	0	12
Soccer - speedball	5	3	3	3	0	0	0	0	14
Softball - baseball	3	4	1	0	0	0	0	0	8
Track and field - Cross country	11	9	14	2	2	1	0	0	39
Volleyball	8	8	7	6	5	3	0	1	38
Wrestling - Personal defence	6	4	5	12	2	0	0	0	29
Miscellaneous indoor activities	43	59	40	26	13	10	5	2	198
Miscellaneous outdoor activities	23	16	23	6	16	9	1	1	95
Totals	153	161	157	144	97	49	6	4	771

TABLE XXVI

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR TIME OF DAY

ACTIVITY	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Aquatics	0	0	0	1	0	0	1	0	0	0	0	0	2
Basketball	2	6	5	12	6	7	7	4	6	6	6	6	73
Bordenball	0	0	0	0	0	0	0	1	0	0	0	0	1
Dance	0	0	0	0	0	0	2	1	0	0	0	0	3
European handball - field ball - field hockey	0	0	3	1	1	1	3	2	1	0	0	0	12
Football - tackle	0	5	2	1	1	5	3	0	12	25	23	2	79
Floor hockey	0	0	2	4	4	6	5	5	1	1	1	2	31
Football - touch, flag	0	0	4	5	1	3	1	2	2	1	2	1	22
Gymnastics - apparatus	0	5	12	26	8	5	3	8	8	3	0	2	80
Gymnastics - free exercise, tumbling	0	5	4	6	3	4	5	7	0	1	1	1	37

TABLE XXVI (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR TIME OF DAY

ACTIVITY	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Ice hockey	0	0	3	1	0	0	0	0	0	1	1	0	6
Other ice sports	0	0	4	2	3	1	1	3	1	0	0	0	15
Racquet sports	0	1	1	4	1	1	0	4	0	0	0	0	12
Soccer - Speedball	0	0	3	1	3	3	5	3	0	0	0	0	18
Softball - Baseball	0	0	1	3	2	1	0	1	0	0	0	0	8
Track and field - Cross country	0	2	1	8	4	1	3	4	9	7	0	0	39
Volleyball	0	2	6	4	3	4	7	5	2	4	1	0	38
Wrestling - Personal defence	0	1	5	5	4	8	3	2	0	0	0	0	28
Miscellaneous indoor activities	0	3	24	28	38	34	23	37	24	1	0	3	215
Miscellaneous outdoor activities	0	11	11	4	7	32	7	5	8	11	3	1	100
Totals	2	41	91	116	89	116	79	94	74	61	38	18	819

TABLE XXVII

PREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR BODY REGION INJURED

ACTIVITY	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper arm	Elbow	Forearm	Wrist	Hand	Finger
Aquatics	0	1	0	0	0	0	0	0	0	0	0	0
Basketball	4	6	2	4	0	0	0	2	1	4	3	12
Bordenball	0	0	0	0	0	0	0	0	0	0	0	0
Dance	0	0	0	0	0	0	0	0	0	1	0	0
European handball - Field ball - Field hockey	1	2	0	3	0	0	0	0	0	0	1	1
Football - tackle	8	2	2	1	4	4	1	2	2	4	4	6
Floor hockey	7	7	2	3	1	0	0	1	0	1	1	3
Football - touch, flag	2	0	1	2	0	2	2	1	1	3	1	2
Gymnastics - apparatus	11	2	6	2	15	3	1	3	2	6	4	9
Gymnastics - free exercise, tumbling	2	0	0	2	6	4	0	2	1	1	1	1

TABLE XXVII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR BODY REGION INJURED

BODY REGION INJURED

ACTIVITY	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Aquatics	0	0	0	0	0	0	0	1	0	0	0	2
Basketball	0	0	2	1	0	1	3	1	27	8	0	81
Bordenball	0	0	0	1	0	0	0	0	0	0	0	1
Dance	0	0	0	0	0	0	0	0	1	1	0	3
European handball - Field ball - Field hockey	0	0	2	0	0	0	0	0	4	0	0	14
Football - tackle	2	1	6	0	1	2	15	6	9	2	0	84
Floor hockey	0	0	1	0	0	0	3	0	0	0	4	34
Football - touch, flag	0	0	1	0	0	1	3	1	2	1	1	27
Gymnastics - apparatus	4	0	8	0	1	2	3	0	4	10	0	96
Gymnastics - free exercise, tumbling	2	0	7	1	0	2	2	0	3	6	0	43

TABLE XXVII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR BODY REGION INJURED

ACTIVITY	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper arm	Elbow	Forearm	Wrist	Hand	Finger
Ice hockey	1	3	0	0	0	0	0	0	0	0	1	0
Other ice sports	2	3	0	0	0	0	0	0	0	1	0	2
Racquet sports	2	2	2	1	0	0	2	0	2	0	2	0
Soccer - Speedball	0	2	1	1	0	0	0	1	0	1	0	1
Softball - Baseball	0	2	0	2	0	0	1	0	0	0	2	2
Track and field - Cross country	8	2	2	1	0	1	1	2	0	2	0	2
Volleyball	3	0	1	5	2	3	1	0	1	3	3	6
Wrestling - Personal defence	1	1	1	4	4	4	0	1	1	2	1	4
Miscellaneous indoor activities	42	19	3	9	5	2	1	5	9	12	24	49
Miscellaneous outdoor activities	19	10	4	5	1	6	4	8	1	7	5	8
Totals	113	64	27	45	38	29	14	28	21	48	53	108

TABLE XXVII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR BODY REGION INJURED

ACTIVITY	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Ice hockey	0	0	0	0	0	0	2	0	0	0	0	7
Other ice sports	0	1	0	1	0	1	4	1	1	0	0	17
Racquet sports	0	0	0	0	0	0	1	0	0	1	1	16
Soccer - Speedball	0	0	1	0	0	0	3	1	4	3	1	20
Softball - Baseball	0	0	0	0	0	0	1	0	0	0	0	10
Track and field - Cross country	0	2	4	0	0	1	4	3	9	2	1	47
Volleyball	0	0	1	0	0	1	2	0	9	3	2	46
Wrestling - Personal defence	0	0	1	1	0	1	1	1	3	1	1	34
Miscellaneous indoor activities	3	4	6	4	0	7	3	3	10	7	16	243
Miscellaneous outdoor activities	1	0	2	0	0	1	12	9	13	2	6	124
Totals	12	8	42	9	2	20	62	27	99	47	33	949*

*Number due to multiple injuries.

TABLE XXVIII

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR TYPE OF INJURY

ACTIVITY	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Others	Totals
	TYPE OF INJURY													
Aquatics	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Basketball	1	4	0	9	3	5	34	4	10	0	1	4	4	79
Bordenball	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Dance	0	1	0	0	0	0	1	0	1	0	0	0	0	3
European handball - Field ball - Field hockey	0	1	0	1	1	2	3	0	1	0	0	4	1	14
Football - tackle	0	4	0	12	9	16	14	5	16	6	2	1	6	91
Floor hockey	1	14	0	7	3	0	2	1	1	2	0	4	1	36
Football - touch, flag	0	1	0	5	3	4	4	1	5	0	1	2	1	27
Gymnastics - apparatus	2	7	0	15	5	14	15	8	16	6	4	2	2	96
Gymnastics - free exercise, tumbling	2	1	0	3	2	13	10	1	4	1	0	2	1	40

TABLE XXVIII (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR TYPE OF INJURY

ACTIVITY	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Others	Totals
Ice hockey	0	3	0	1	0	0	1	0	0	1	0	0	0	6
Other ice sports	0	4	0	5	2	1	3	0	0	1	0	0	2	18
Racquet sports	0	3	0	4	3	0	0	0	1	0	0	1	1	13
Soccer - Speedball	0	4	0	4	1	1	5	3	0	0	0	1	0	19
Softball - Baseball	0	4	0	1	1	0	0	0	2	0	0	2	0	10
Track and field - Cross country	1	6	0	7	5	8	12	1	4	2	1	1	7	55
Volleyball	2	2	1	3	2	6	15	1	3	1	1	5	1	43
Wrestling - Personal defence	0	0	0	5	0	2	4	2	10	1	0	4	3	31
Miscellaneous indoor activities	18	86	9	27	12	6	17	3	18	8	1	8	15	228
Miscellaneous outdoor activities	8	23	0	19	8	5	20	6	22	8	3	4	4	130
Totals	35	170	10	129	60	83	160	36	114	37	14	45	49	942*

*Number due to multiple injuries

TABLE XXIX

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR FACILITY AREA

ACTIVITY	FACILITY AREA											
	Gymnasium	Playing field - tarmac	Classroom-laboratory	Playground climbing play apparatus	Hallway-Stairway	Rink	In transit to or from school	Lockerroom-shower restroom	Pool	Other	Ski area	Totals
Aquatics	0	0	0	0	0	0	0	0	2	0	0	2
Basketball	73	0	0	0	0	0	0	0	0	0	0	73
Bordenball	1	0	0	0	0	0	0	0	0	0	0	1
Dance	3	0	0	0	0	0	0	0	0	0	0	3
European handball - Field ball - Field hockey	9	3	0	0	0	0	0	0	0	0	0	12
Football - tackle	0	78	0	0	1	0	0	0	0	0	0	79
Floor hockey	28	1	1	0	0	0	0	1	0	0	0	31
Football - touch, flag	4	19	0	0	0	0	0	0	0	0	0	23
Gymnastics - apparatus	76	0	1	0	2	0	0	0	0	1	0	80
Gymnastics - free exercise, tumbling	35	0	2	0	0	0	0	0	0	0	0	37

TABLE XXIX (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR FACILITY AREA

ACTIVITY	FACILITY AREA											
	Gymnasium	Playing field-tarmac	Classroom-Laboratory	Playground climbing play apparatus	Hallway-Stairway	Rink	In transit to or from school	Locker room-shower restroom	Pool	Other	Ski area	Totals
Ice hockey	0	0	0	0	0	6	0	0	0	0	0	6
Other ice sports	0	0	0	0	0	13	0	0	0	2	0	15
Racquet sports	9	1	1	0	0	0	0	0	0	1	0	12
Soccer - Speedball	4	14	0	0	0	0	0	0	0	0	0	18
Softball - Baseball	0	7	0	0	0	0	0	0	0	1	0	8
Track and field - Cross country	13	20	0	2	2	0	0	1	0	1	0	39
Volleyball	38	0	0	0	0	0	0	0	0	0	0	38
Wrestling - Personal defence	26	0	0	0	2	0	0	0	0	1	0	29
Miscellaneous indoor activities	39	1	102	0	52	1	1	3	1	15	0	215
Miscellaneous outdoor activities	1	32	0	6	1	1	18	0	0	10	34	103
Totals	359	176	107	8	60	21	19	5	3	32	34	824

TABLE XXX

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR PROBABLE DIRECT CAUSE

ACTIVITY	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity	Strain or over exertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Aquatics	1	0	1	0	0	0	0	0	0	0	0	0	2
Basketball	16	25	1	0	21	8	0	1	1	0	0	0	73
Bordenball	0	1	0	0	0	0	0	0	0	0	0	0	1
Dance	0	2	0	1	0	0	0	0	0	0	0	0	3
European handball - Field ball - Field hockey	3	3	0	0	4	0	0	1	0	1	0	0	12
Football - tackle	5	1	0	0	15	50	3	0	3	2	0	0	79
Floor hockey	18	3	0	1	4	3	0	1	0	0	0	0	30
Football - touch, flag	1	5	0	1	10	4	0	0	0	0	1	1	23
Gymnastics - apparatus	7	12	47	0	2	1	5	6	2	6	0	1	89
Gymnastics - free exercise, tumbling	0	5	8	0	3	5	7	4	5	2	0	0	39

TABLE XXX (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR PROBABLE DIRECT CAUSE

ACTIVITY	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity	Strain or over exertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Ice hockey	2	3	1	0	0	0	0	0	0	0	0	0	6
Other ice sports	3	9	0	0	1	0	0	1	1	2	0	0	17
Racquet sports	10	0	1	0	0	0	1	0	0	0	0	0	12
Soccer - Speedball	3	3	0	0	8	2	0	0	1	1	0	1	19
Softball - Baseball	6	0	0	0	1	0	0	0	1	0	0	0	8
Track and field - Cross country	5	10	12	2	2	1	4	1	2	1	1	0	41
Volleyball	13	8	0	1	5	3	3	2	1	2	0	0	38
Wrestling - Personal defence	0	2	0	1	3	20	0	1	1	0	0	0	28
Miscellaneous indoor activities	22	50	8	2	14	5	3	68	9	39	1	8	229
Miscellaneous outdoor activities	15	39	8	2	10	7	1	10	1	15	1	7	116
Totals	130	181	87	11	103	109	27	96	28	71	4	18	865*

*Number due to multiple injuries.

TABLE XXXI

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES

FOR PROGRAM PHASE

ACTIVITY	PROGRAM PHASE							
	Physical education instruction	Intramural - house leagues	Interscholastics - game/practice	Recess	Before/after school, noon hour play	Classroom/laboratory instruction	Field trips	Totals
Aquatics	1	1	0	0	0	0	0	2
Basketball	35	6	22	1	9	0	0	73
Bordenball	1	0	0	0	0	0	0	1
Dance	3	0	0	0	0	0	0	3
European handball - field hockey - field ball	10	2	0	0	0	0	0	12
Football - tackle	2	1	71	0	5	0	0	79
Floor hockey	17	7	1	2	3	1	0	31
Football - touch, flag	12	3	4	0	4	0	0	23
Gymnastics - apparatus	60	0	13	0	5	2	0	80
Gymnastics - free exercise, tumbling	25	0	7	0	4	1	0	37

TABLE XXXI (continued)

FREQUENCY OF INJURIES AS RELATED TO JUNIOR OR SENIOR HIGH SCHOOL ACTIVITIES FOR PROGRAM PHASE

ACTIVITY	PROGRAM PHASE: Physical education instruction	Intramural - house leagues	Interscholastics - game-practice	Recess	Before/after school, noon hour play	Classroom/laboratory instruction	Field trips	Totals
Ice hockey	4	1	1	0	0	0	0	6
Other ice sports	11	1	0	0	1	1	1	15
Racquet sports	10	0	2	0	0	0	0	12
Soccer - Speedball	13	3	0	0	2	0	0	18
Softball - Baseball	5	0	0	0	1	1	1	8
Track and field - cross country	18	2	17	0	2	0	0	39
Volleyball	23	5	9	0	1	0	0	38
Wrestling - Personal defence	20	6	0	0	3	0	0	29
Miscellaneous indoor activities	34	9	2	14	57	103	1	214
Miscellaneous outdoor activities	9	2	2	2	50	3	35	103
Totals	313	43	151	19	147	112	38	823

APPENDIX E

TABLES FOR MISCELLANEOUS CROSS TABULATIONS FOR TOTAL POPULATION

TABLE XXXII

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR AGE FOR TOTAL POPULATION

SEX	AGE															
	Six or less	Seven	Eight	Nine	Ten	Eleven	Twelve	Thirteen	Fourteen	Fifteen	Sixteen	Seventeen	Eighteen	Nineteen	Twenty or older	Totals
Male	61	74	46	65	81	105	89	89	94	112	78	44	18	1	2	959
Female	45	42	29	42	56	76	69	78	72	57	31	12	2	0	2	613
Totals	106	116	75	107	137	181	158	167	166	169	109	56	20	1	4	1572

TABLE XXXIII

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR GRADE FOR TOTAL POPULATION

SEX	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Male	9	73	63	51	61	96	99	85	85	86	98	73	42	19	2	941
Female	6	43	41	33	44	67	65	72	78	73	47	25	10	6	2	612
Totals	15	116	103	84	105	163	164	157	163	159	145	98	52	25	4	1553

TABLE XXXIV

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR TIME OF DAY FOR TOTAL POPULATION

SEX	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Male	2	50	65	165	82	208	75	164	76	50	33	12	982
Female	0	33	43	106	50	111	60	133	56	20	7	8	627
Totals	2	83	108	271	132	319	135	297	132	70	40	20	1609

TABLE XXXV

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR BODY REGION INJURED FOR TOTAL POPULATION

	BODY REGION INJURED											
SEX	Head	Face	Nose	Teeth	Neck	Shoulder	Upper arm	Elbow	Forearm	Wrist	Hand	Finger
Male	219	116	31	81	29	32	16	22	22	41	58	95
Female	133	53	22	54	20	21	8	24	17	39	29	78
Totals	352	169	53	135	49	53	24	46	39	80	87	173

TABLE XXXV (continued)

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR BODY REGION INJURED FOR TOTAL POPULATION

BODY REGION INJURED

SEX	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Male	10	7	27	6	7	16	56	30	67	47	53	1088
Female	4	8	32	6	0	10	31	18	56	35	20	718
Totals	14	15	59	12	7	26	87	48	123	82	73	1806*

*Number due to multiple injuries.

TABLE XXXVI

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR TYPE OF INJURY FOR TOTAL POPULATION

SEX	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Other types of injury	Totals
Male	69	270	9	171	68	62	108	35	118	47	16	76	55	1104
Female	49	124	3	116	45	37	114	15	71	21	15	56	51	717
Totals	118	394	12	287	113	99	222	50	189	68	31	132	106	1821*

*Number due to multiple injuries.

TABLE XXXVII

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR FACILITY AREA WHERE ACCIDENT OCCURRED FOR TOTAL POPULATION

SEX	FACILITY AREA											
	Gymnasium	Playing field - tarmac	Classroom - laboratory	Playground climbing-play apparatus	Hallway-stairway	Rink	In transit to or from school	Locker room-shower-restroom	Pool	Other	Ski area	Totals
Male	239	392	121	43	73	22	18	7	4	47	20	986
Female	222	193	56	31	39	14	13	2	0	33	26	629
Totals	461	585	177	74	112	36	31	9	4	80	46	1615

TABLE XXXVIII

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

SEX	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity	Strain or over-exertion	Carelessness on the part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Male	149	217	60	23	168	123	16	131	20	80	5	47	1039
Female	115	186	68	14	82	25	17	47	21	66	9	10	660
Totals	264	403	128	37	250	148	33	178	41	146	14	57	1699*

*Number due to multiple causes.

TABLE XXXIX

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES

FOR PROGRAM PHASE FOR TOTAL POPULATION

	PROGRAM PHASE							
SEX	Physical education instruction	Intramural - house leagues	Interscholastics game/practice	Recess	Before/after school, noon hour play	Classroom/lab instruction	Field trips	Totals
Male	226	32	116	196	272	120	25	987
Female	183	29	40	134	160	49	32	627
Totals	409	61	156	330	432	169	57	1614

TABLE XL

FREQUENCY OF INJURIES AS RELATED TO MALES AND FEMALES FOR MONTHS OF THE SCHOOL YEAR FOR TOTAL POPULATION

SEX	MONTH										
	January	February	March	April	May	June	September	October	November	December	Totals
Male	101	84	95	75	107	62	148	151	95	71	989
Female	79	78	73	47	68	31	54	65	79	58	632
Totals	180	162	168	122	175	93	202	216	174	129	1621

TABLE XLI

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR AGE FOR TOTAL POPULATION

MONTH	AGE															
	Six or younger	Seven	Eight	Nine	Ten	Eleven	Twelve	Thirteen	Fourteen	Fifteen	Sixteen	Seventeen	Eighteen	Nineteen	Twenty or older	Totals
January	7	17	9	9	23	19	11	19	27	16	8	7	1	0	1	174
February	12	21	6	10	12	18	14	18	12	15	9	8	3	0	1	159
March	8	13	6	10	10	21	29	22	16	12	11	6	1	0	0	165
April	6	8	6	9	12	19	12	11	16	12	3	2	1	0	0	117
May	7	10	77	13	10	19	20	26	21	18	14	3	1	0	0	169
June	7	6	5	7	8	12	6	10	15	6	1	5	2	0	1	91
September	22	9	10	6	14	20	19	16	15	26	26	9	5	1	1	199
October	19	13	8	19	16	23	21	16	12	29	17	8	4	0	0	205
November	14	8	11	17	20	17	14	16	15	21	11	3	2	0	0	169
December	4	11	7	7	12	13	12	13	17	14	9	5	0	0	0	124
Totals	106	116	75	107	137	181	158	167	166	169	109	56	20	1	4	1572

TABLE XLII

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR GRADE FOR TOTAL POPULATION

MONTH	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
January	0	10	17	6	9	25	23	14	22	24	8	6	7	2	1	174
February	3	14	17	8	11	16	10	11	17	14	14	10	7	6	1	159
March	1	12	10	8	6	19	17	27	20	18	13	6	4	4	0	165
April	3	6	9	7	10	18	16	7	16	13	6	3	1	2	0	117
May	0	13	3	11	11	15	18	22	21	22	11	6	2	5	0	166
June	2	10	4	5	6	8	11	8	14	7	4	3	3	3	1	89
September	1	15	15	7	11	13	14	21	12	19	23	24	11	1	1	188
October	2	20	9	12	15	18	22	18	13	12	29	21	10	1	0	202
November	2	10	9	14	19	18	21	15	9	15	22	10	3	1	0	168
December	1	6	10	6	7	13	12	14	19	15	9	9	4	0	0	125
Totals	15	116	103	84	105	163	164	157	163	159	145	98	52	25	4	1553

TABLE XLIII

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR TIME OF DAY FOR TOTAL POPULATION

MONTH	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
January	0	6	17	22	12	36	15	38	18	6	4	4	178
February	0	6	13	31	15	27	14	32	9	4	6	4	161
March	0	10	13	34	17	36	16	22	15	3	0	2	168
April	0	9	10	27	12	31	8	14	6	4	0	1	122
May	0	7	10	28	16	29	14	41	21	6	0	0	172
June	0	5	8	21	7	17	11	16	7	0	1	0	93
September	1	18	8	18	13	47	15	28	17	24	10	1	200
October	0	8	11	28	16	46	19	37	15	13	17	5	215
November	0	8	8	37	13	31	11	43	14	4	1	2	172
December	1	6	10	25	11	19	12	26	10	6	1	1	128
Totals	2	83	108	271	132	319	135	297	132	70	40	20	1609

TABLE XLIV

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR BODY REGION INJURED FOR TOTAL POPULATION

MONTH	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
January	44	19	10	12	4	4	1	7	3	7	13	16
February	39	13	6	17	3	7	2	3	3	2	6	17
March	32	19	5	13	9	6	1	3	5	14	10	20
April	21	12	2	9	5	6	3	7	2	9	9	15
May	38	17	0	18	5	2	4	6	8	8	10	20
June	19	10	6	9	3	3	3	4	2	4	5	11
September	40	23	10	11	5	8	6	7	2	9	9	22
October	46	26	6	19	6	10	0	1	4	11	9	19
November	44	17	5	19	5	6	3	5	3	7	8	20
December	29	13	3	8	4	1	1	3	7	9	8	13
Totals	352	169	53	135	49	53	24	46	39	80	87	173

TABLE XLIV (continued)

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR BODY REGION INJURED FOR TOTAL POPULATION

MONTH	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Eye	Totals
January	3	2	4	1	0	2	9	3	18	9	8	199
February	1	1	7	2	0	1	8	13	13	13	6	183
March	2	3	5	1	0	1	7	2	11	7	9	185
April	2	3	4	1	1	1	2	2	6	11	3	136
May	1	1	8	1	0	5	12	6	13	11	6	200
June	0	2	2	2	2	4	5	1	10	4	7	118
September	3	1	6	2	2	3	14	2	15	9	9	218
October	0	2	9	0	1	2	17	7	14	8	12	229
November	2	0	9	0	1	4	8	6	15	8	6	201
December	0	0	5	2	0	3	5	6	8	2	7	137
Totals	14	15	59	12	7	26	87	48	123	82	73	1806*

*Number due to multiple injuries

TABLE XLV

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR TYPE OF INJURY FOR TOTAL POPULATION

MONTH	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-separation	Fracture	Concussion	Nose Bleed	Teeth loosened or broken	Other types of injury	Totals
January	14	40	1	36	19	7	27	5	25	7	5	13	8	207
February	11	25	2	37	4	11	16	4	31	7	4	16	11	179
March	11	42	2	21	5	4	24	7	23	9	4	13	16	181
April	3	34	1	17	9	7	16	7	15	9	0	8	6	132
May	14	47	3	36	12	13	22	4	18	6	1	17	13	206
June	11	30	0	14	9	4	14	4	4	5	3	8	12	118
September	17	41	1	40	14	20	30	6	20	5	7	11	10	222
October	22	62	1	26	17	14	24	5	27	7	2	18	15	240
November	9	39	0	33	16	11	25	6	13	5	3	20	12	196
December	6	34	1	27	8	8	24	2	13	8	2	8	3	144
Totals	118	394	12	287	113	99	222	50	189	68	31	132	106	1821*

*Number due to multiple injuries.

TABLE XLVI

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR FACILITY AREA WHERE ACCIDENT OCCURRED FOR TOTAL POPULATION

MONTH	FACILITY AREA											
	Gymnasium	Playing field-tarmac	Classroom-Laboratory	Playground climbing-play apparatus	Hallway-stairway	Rink	In transit to or from school	Locker room - shower - restroom	Pool	Other	Ski area	Totals
January	57	40	20	8	17	8	5	4	0	6	12	177
February	66	29	19	8	9	5	4	0	0	4	18	162
March	68	35	14	8	16	6	3	1	1	15	0	167
April	42	43	11	2	11	0	4	0	0	8	0	121
May	35	73	30	11	11	0	1	2	0	12	0	175
June	19	44	12	6	4	0	0	0	1	7	0	93
September	26	122	15	10	13	2	7	1	0	6	0	202
October	48	112	22	5	11	1	3	1	2	10	0	215
November	63	51	17	14	14	5	2	0	0	8	0	174
December	37	36	17	2	6	9	2	0	0	4	16	129
Totals	461	585	177	74	112	36	31	9	4	80	46	1615

TABLE XLVII

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

MONTH	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity	Strain or over-exertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
January	27	54	8	3	30	13	4	20	2	18	0	5	184
February	16	47	19	2	27	10	3	23	10	15	1	5	178
March	27	35	27	4	18	9	5	18	2	31	1	2	179
April	24	27	11	4	15	14	4	12	4	8	3	6	132
May	38	36	16	3	16	9	2	24	3	15	5	13	180
June	18	16	11	4	16	5	3	15	2	4	2	1	97
September	30	49	6	5	37	35	3	16	7	12	2	7	209
October	26	48	6	9	44	33	3	26	5	14	0	10	224
November	36	49	9	0	33	12	5	12	5	15	0	7	183
December	22	42	15	3	14	8	1	12	1	14	0	1	133
Totals	264	403	128	37	250	148	33	178	41	146	14	57	1699*

*Number due to multiple causes

TABLE XLVIII

FREQUENCY OF INJURIES AS RELATED TO MONTHS OF SCHOOL YEAR

FOR PROGRAM PHASE FOR TOTAL POPULATION

MONTH	PROGRAM PHASE							
	Physical education instruction	Intramural-house league	Interscholastics game/practice	Recess	Before/after school, noon hour play	Classroom/laboratory instruction	Field trips	Totals
January	39	9	10	36	49	23	12	178
February	51	4	11	30	33	14	18	161
March	64	5	7	29	48	14	1	168
April	35	7	4	28	37	10	1	122
May	48	6	9	32	46	32	2	175
June	26	2	6	19	28	9	3	93
September	31	6	47	34	71	12	0	201
October	40	13	42	42	52	24	1	214
November	41	6	13	54	43	15	1	173
December	34	3	7	26	25	16	18	129
Totals	409	61	156	330	432	169	57	1614

TABLE XLIX

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR GRADE FOR TOTAL POPULATION

AGE	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Six or younger	14	83	8	1	0	0	0	0	0	0	0	0	0	0	0	106
Seven	0	32	73	8	0	0	0	0	0	0	0	0	0	0	0	113
Eight	0	1	15	47	4	2	0	0	0	0	0	0	0	5	0	74
Nine	0	0	4	20	68	6	3	1	0	0	0	0	0	3	0	105
Ten	0	0	0	3	27	92	10	0	0	0	0	0	0	2	0	134
Eleven	0	0	0	1	3	49	102	15	3	0	0	0	0	4	0	177
Twelve	0	0	0	1	0	5	42	82	11	0	1	0	0	4	0	146
Thirteen	0	0	0	0	0	2	3	47	88	17	3	0	0	3	0	163
Fourteen	0	0	0	0	0	1	1	7	52	88	10	1	0	0	0	160
Fifteen	0	0	0	0	0	0	0	0	8	45	87	16	0	2	0	159
Sixteen	0	0	0	0	0	0	0	0	0	5	35	61	1	0	0	102
Seventeen	0	0	0	0	0	0	0	0	0	0	4	16	36	0	0	56
Eighteen	0	0	0	0	0	0	0	0	0	0	1	2	13	0	0	16
Nineteen	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Twenty or older	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Totals	14	116	100	81	102	157	161	152	162	156	141	96	51	23	4	1516

TABLE L

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR TIME OF DAY FOR TOTAL POPULATION

AGE	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 n.	12 n. - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Six or younger	0	9	3	22	8	24	2	28	10	0	0	0	106
Seven	0	8	0	18	4	37	9	28	10	1	0	0	115
Eight	0	6	0	10	3	15	6	20	3	0	0	0	73
Nine	0	0	2	1[illegible]	3	33	11	31	8	0	0	0	106
Ten	0	5	4	2[illegible]	9	41	9	35	5	2	0	0	136
Eleven	0	10	8	36	14	29	14	47	1[illegible]	2	1	0	180
Twelve	0	8	9	24	13	38	16	22	19	4	2	2	157
Thirteen	0	10	12	29	18	31	14	20	16	9	3	4	166
Fourteen	1	5	20	31	18	27	13	19	19	8	3	1	165
Fifteen	1	9	17	24	20	21	14	20	12	18	13	0	169
Sixteen	0	9	15	10	11	8	12	11	8	14	7	4	109
Seventeen	0	4	9	2	6	3	8	4	2	7	6	5	56
Eighteen	0	0	4	1	1	1	3	2	0	3	3	2	20
Nineteen	0	0	0	0	0	0	0	0	1	0	0	0	1
Twenty or older	0	0	0	0	0	2	0	1	0	1	0	0	4
Totals	2	83	103	261	128	310	131	288	132	69	38	18	1563

TABLE LI

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR BODY REGION INJURED FOR TOTAL POPULATION

BODY REGION INJURED

AGE	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Six or younger	49	26	3	9	1	0	1	0	1	1	2	6
Seven	47	21	5	14	1	1	0	0	1	2	5	5
Eight	27	9	2	12	0	4	0	1	1	1	2	7
Nine	24	15	2	19	1	3	3	5	5	3	4	5
Ten	37	15	5	17	1	3	3	4	1	9	8	13
Eleven	36	7	5	11	9	10	3	5	6	14	7	21
Twelve	28	13	6	9	3	4	1	6	6	13	10	23
Thirteen	35	20	5	11	4	5	2	9	4	11	6	24
Fourteen	26	15	10	14	10	4	5	8	4	8	16	23
Fifteen	17	12	3	7	9	10	3	3	6	7	9	22
Sixteen	7	2	2	3	2	4	1	3	1	8	8	14
Seventeen	7	4	3	3	4	2	2	2	2	1	8	4
Eighteen	0	3	0	1	0	1	0	0	1	1	0	0
Nineteen	0	0	0	0	0	0	0	0	0	0	0	0
Twenty or older	1	0	0	0	2	1	0	0	0	0	0	1
Totals	341	162	51	130	47	52	24	46	39	79	85	168

TABLE LI (continued)

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR BODY REGION INJURED FOR TOTAL POPULATION

AGE	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Eye	Totals
Six or younger	0	1	2	1	0	0	2	1	0	2	5	113
Seven	0	0	1	0	2	2	6	1	1	3	7	125
Eight	0	0	2	0	0	1	1	0	0	2	6	78
Nine	1	1	2	0	1	2	8	3	2	7	3	119
Ten	0	1	2	1	1	0	2	5	6	5	4	143
Eleven	2	4	8	1	1	2	5	6	10	11	9	193
Twelve	0	1	7	1	0	0	8	10	11	12	8	180
Thirteen	2	1	6	2	0	1	5	0	21	7	11	192
Fourteen	2	1	7	3	0	3	14	3	10	5	5	196
Fifteen	4	4	11	1	0	8	11	11	22	11	2	193
Sixteen	2	1	3	1	2	4	14	5	15	8	7	117
Seventeen	1	0	3	0	0	0	4	1	14	4	1	70
Eighteen	0	0	2	0	0	1	5	0	6	0	0	21
Nineteen	0	0	0	0	0	0	0	0	1	0	0	1
Twenty or older	0	0	0	1	0	1	0	2	1	1	0	11
Totals	14	15	56	12	7	25	85	48	120	78	68	1752*

*Number due to multiple injuries.

TABLE LII

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR TYPE OF INJURY FOR TOTAL POPULATION

AGE	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose Bleed	Teeth loosened or broken	Other types of injury	Totals
Six or younger	18	44	0	27	3	0	0	0	2	3	4	9	11	121
Seven	15	44	0	26	7	1	4	0	5	6	5	13	3	129
Eight	12	20	0	13	3	0	4	1	6	4	1	12	4	80
Nine	12	34	0	14	6	3	8	1	9	2	1	19	6	115
Ten	14	28	1	33	10	3	13	4	13	7	2	17	6	151
Eleven	6	28	0	33	12	9	25	9	31	6	3	10	24	196
Twelve	11	36	1	33	18	8	21	1	27	4	3	10	10	183
Thirteen	11	46	1	26	5	10	28	6	20	10	4	11	11	189
Pourteen	8	39	5	28	18	11	30	8	21	8	2	12	6	196
Fifteen	2	30	2	27	9	22	35	13	21	6	1	7	12	187
Sixteen	4	17	1	11	11	18	27	4	17	4	3	3	7	127
Seventeen	2	10	0	8	3	6	14	2	6	3	1	3	2	60
Eighteen	0	2	0	2	1	3	7	0	4	0	0	1	1	21
Nineteen	0	0	0	0	0	0	1	0	1	0	0	0	0	2
Twenty or older	0	1	0	1	1	1	0	0	1	1	0	0	0	6
Totals	115	379	11	282	107	95	217	49	184	64	30	127	103	1763*

*Number due to multiple injuries.

TABLE LIII

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR FACILITY AREA WHERE ACCIDENT OCCURRED FOR TOTAL POPULATION

AGE	FACILITY AREA											
	Gymnasium	Playing field tarmac	Classroom-Laboratory	Playground climbing- play apparatus	Hallway-Stairway	Rink	In transit to or from school	Locker room - shower - restroom	Pool	Other	Ski Area	Totals
Six or younger	2	47	17	12	10	2	4	1	0	11	0	106
Seven	9	60	10	9	11	3	3	1	0	10	0	116
Eight	4	43	7	8	6	1	2	1	0	3	0	75
Nine	11	59	9	10	6	2	2	0	0	7	1	107
Ten	23	75	12	12	3	1	1	1	0	5	4	137
Eleven	43	85	15	10	8	5	0	0	1	7	6	180
Twelve	63	46	15	5	14	3	3	1	0	4	4	168
Thirteen	67	32	27	2	14	5	7	2	0	8	3	167
Fourteen	73	21	26	1	13	6	6	2	0	7	10	165
Fifteen	83	40	18	0	13	3	0	0	1	3	8	169
Sixteen	42	35	11	0	7	3	2	0	0	4	5	109
Seventeen	20	16	3	2	3	0	1	0	1	7	3	56
Eighteen	6	8	1	0	1	1	0	0	1	0	2	20
Nineteen	0	1	0	0	0	0	0	0	0	0	0	1
Twenty or older	1	0	0	0	1	0	0	0	0	2	0	4
Totals	447	568	171	71	110	35	31	9	4	78	46	1580

TABLE LIV

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

AGE	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in the normal course of an activity	Strain or over-exertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Six or younger	18	36	2	2	15	3	0	8	4	13	4	8	113
Seven	17	37	4	8	22	6	0	17	0	10	0	5	126
Eight	13	24	2	0	18	3	0	9	1	2	1	5	78
Nine	12	34	8	3	19	4	0	10	2	13	1	4	110
Ten	27	33	7	5	26	12	0	13	4	9	2	4	142
Eleven	31	39	14	5	31	8	5	19	2	22	2	6	184
Twelve	40	35	22	2	14	9	4	17	4	15	1	5	168
Thirteen	31	40	22	2	23	7	1	22	3	19	2	6	178
Fourteen	29	37	19	5	17	19	3	25	4	13	0	5	176
Fifteen	16	40	13	1	27	33	12	17	7	8	0	3	177
Sixteen	13	22	5	1	17	20	6	11	5	11	0	0	111
Seventeen	7	12	3	1	7	16	0	3	2	4	1	1	57
Eighteen	3	5	1	0	6	3	1	1	0	1	0	0	21
Nineteen	0	0	0	0	0	0	0	0	1	0	0	0	1
Twenty or older	1	2	1	0	0	0	0	1	0	0	0	0	5
Totals	258	396	123	35	242	143	32	173	39	140	14	52	1647*

*Number due to multiple causes.

TABLE LV

FREQUENCY OF INJURIES AS RELATED TO AGE

FOR PROGRAM PHASE FOR TOTAL POPULATION

AGE	PROGRAM PHASE							
	Physical education instruction	Intramural - house league	Interscholastics - game/practice	Recess	Before/after school, noon hour play	Classroom/ laboratory instruction	Field trips	Totals
Six or younger	2	0	0	47	46	10	1	106
Seven	12	1	1	42	53	5	1	115
Eight	8	0	0	35	25	6	1	75
Nine	13	2	0	40	39	11	1	106
Ten	19	1	0	51	51	9	5	136
Eleven	41	9	1	66	41	14	8	180
Twelve	49	9	8	16	55	16	5	158
Thirteen	55	11	18	7	43	28	5	167
Fourteen	64	12	18	3	30	27	11	165
Fifteen	70	9	41	4	20	18	7	169
Sixteen	40	2	35	1	11	13	6	108
Seventeen	16	2	21	2	6	5	4	56
Eighteen	6	1	9	1	0	1	2	20
Nineteen	0	0	1	0	0	0	0	1
Twenty or older	0	0	1	1	2	0	0	4
Totals	395	59	154	316	422	163	57	1566

TABLE LVI

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR GRADE FOR TOTAL POPULATION

PROGRAM PHASE	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Physical education instruction	1	3	10	10	12	29	29	60	64	63	71	30	8	4	0	394
Intramurals - house leagues	0	0	1	1	1	3	10	12	7	13	3	2	3	0	0	56
Interscholastics - game/practice	0	1	0	0	0	0	0	13	10	19	40	39	25	0	1	148
Recess	4	47	44	47	39	60	59	2	6	0	5	2	1	9	1	326
Before/after school, noon hour play	6	55	44	21	40	53	48	45	38	27	12	10	6	7	2	414
Classroom/laboratory instruction	3	9	3	4	11	10	10	20	31	26	12	5	6	5	0	155
Field trips	1	1	0	1	1	7	7	4	7	11	2	9	3	0	0	54
Totals	15	116	102	84	104	162	163	156	163	159	145	97	52	25	4	1547

TABLE LVII

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR TIME OF DAY FOR TOTAL POPULATION

PROGRAM PHASE	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 noon	12 noon - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Physical education instruction	0	3	70	90	59	5	69	77	32	2	0	1	408
Intramurals - house leagues	0	0	0	3	2	30	5	3	11	6	1	0	61
Interscholastics - game/practice	1	22	3	1	3	7	2	4	21	43	36	13	156
Recess	0	2	1	147	6	6	3	159	3	1	0	0	328
Before/after school, noon hour play	1	53	5	2	10	265	24	4	48	7	0	6	425
Classroom/laboratory instruction	0	0	21	21	42	4	27	39	14	1	0	0	169
Field trips	0	3	8	7	10	1	4	8	3	10	3	0	57
Totals	2	83	108	271	132	318	134	294	132	70	40	20	1604

TABLE LVIII

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR BODY REGION INJURED FOR TOTAL POPULATION

PROGRAM PHASE	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Physical education instruction	59	37	16	29	24	13	6	11	14	31	20	48
Intramurals - house leagues	9	2	2	2	2	5	1	2	1	4	5	9
Interscholastics - game/practice	15	6	4	4	9	6	3	6	3	9	5	9
Recess	109	47	11	39	6	13	3	7	6	8	15	25
Before/after school, noon hour play	118	55	19	48	6	12	7	16	11	22	18	37
Classroom/laboratory instruction	30	16	0	12	2	1	3	1	4	5	20	41
Field trips	8	5	1	1	0	3	1	3	0	1	4	4
Totals	348	168	53	135	49	53	24	46	39	80	87	173

TABLE LVIII (continued)

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR BODY REGION INJURED FOR TOTAL POPULATION

PROGRAM PHASE	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Eye	Totals
Physical education instruction	5	5	25	5	1	9	25	8	44	33	12	480
Intramurals - house leagues	0	0	1	2	0	0	2	3	8	5	2	67
Interscholastics - game/practice	5	3	11	0	2	5	23	10	28	8	2	176
Recess	1	2	9	2	1	5	10	4	9	12	15	359
Before/after school, noon hour play	2	3	10	2	1	3	16	8	22	19	22	477
Classroom/laboratory instruction	1	2	3	1	1	3	4	1	4	4	18	177
Field trips	0	0	0	0	1	1	7	14	7	1	2	64
Totals	14	15	59	12	7	26	87	48	122	82	73	1800*

*Number due to multiple injuries.

TABLE LIX

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR TYPE OF INJURY FOR TOTAL POPULATION

PROGRAM PHASE	TYPE OF INJURY													
	Abrasion-scraps	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Other types of injury	Totals
Physical education instruction	21	68	1	74	37	40	82	20	61	14	7	28	18	471
Intramurals - house leagues	3	6	0	18	5	2	13	4	10	3	0	2	4	70
Interscholastics - game-practice	2	12	0	19	17	28	41	9	26	11	5	4	13	187
Recess	35	97	1	59	19	6	23	7	21	19	11	39	28	365
Before/after school, noon hour play	41	127	0	78	24	15	40	9	48	16	7	46	28	479
Classroom/laboratory instruction	12	75	9	25	7	4	8	0	7	2	1	12	15	77
Field trips	3	9	1	11	3	4	13	1	16	3	0	1	0	65
Totals	117	394	12	284	112	99	220	50	189	68	31	132	106	1814*

*Number due to multiple injuries.

TABLE LX

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR FACILITY AREA WHERE ACCIDENT OCCURRED FOR TOTAL POPULATION

PROGRAM PHASE	FACILITY AREA											
	Gymnasium	Playing field - tarmac	Classroom/ Laboratory	Playground climbing play apparatus	Hallway-stairway	Rink	In transit to or from school	Lockerroom/shower restroom	Pool	Other	Ski area	Totals
Physical education instruction	301	55	2	4	6	28	1	3	2	7	0	409
Intramurals - house leagues	42	9	0	1	5	2	0	0	1	0	1	61
Interscholastics - game/practice	62	90	1	1	1	1	0	0	0	0	0	156
Recess	8	212	10	37	36	1	1	4	0	17	0	326
Before/after school, noon hour play	43	213	26	31	52	1	26	1	1	38	0	432
Classroom/laboratory instruction	3	5	130	0	10	2	2	1	0	8	0	169
Field trips	0	0	0	0	0	1	1	0	0	10	45	57
Totals	459	584	177	74	110	36	31	9	4	80	46	1610

TABLE LXI

FREQUENCY OF INJURIES AS RELATED TO PROGRAM PHASE

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

PROGRAM PHASE	PROBABLE DIRECT CAUSE												
	Blow delivered by an object	Fall/trip not due to any observed external factor	Fall or loss of balance where apparatus concerned	Obstruction on playing area	Accidental collision between participants	Body contact in normal course of an activity	Strain or over-exertion	Carelessness on part of pupil	No clear or apparent cause	Other probable causes	Animal bites	Fights	Totals
Physical education instruction	88	117	56	6	45	34	13	24	16	27	1	2	429
Intramurals - house leagues	17	10	7	3	10	7	1	2	0	4	0	2	63
Interscholastics - game/practice	13	14	18	2	31	54	13	1	7	4	1	0	158
Recess	59	88	5	10	81	18	4	25	4	25	7	15	341
Before/after school, noon hour play	65	117	26	14	66	27	1	55	8	46	5	33	463
Classroom/laboratory instruction	13	26	7	1	12	5	1	66	6	37	0	5	179
Field trips	8	28	9	1	5	5	0	4	0	3	0	0	63
Totals	263	400	128	37	250	150	33	177	41	146	14	57	1696*

*Number due to multiple causes.

TABLE LXII

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED

FOR GRADE FOR TOTAL POPULATION

FACILITY AREA	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Gymnasium	1	3	7	5	13	27	38	76	70	74	81	33	17	5	1	451
Playing field-tarmac	4	53	60	50	58	88	77	30	19	21	35	36	18	8	0	557
Classroom - lab	5	16	4	7	11	12	10	20	32	24	12	4	4	4	0	165
Playground climbing-play apparatus	3	13	6	10	8	12	11	5	0	1	1	1	0	2	0	73
Hallway-stairway	1	9	13	3	7	5	9	11	16	11	6	9	2	3	1	106
Rink	1	1	3	2	1	3	5	3	5	6	1	2	0	0	0	33
In transit to or from school	0	6	1	1	2	1	0	6	5	5	1	1	1	1	0	31
Lockerroom-shower	0	1	1	1	0	1	0	0	2	1	1	0	0	1	0	9
Pool	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	4
Other	0	14	7	4	4	6	8	2	9	4	5	3	6	1	2	75
Ski area	0	0	0	0	1	7	4	3	5	12	2	7	3	0	0	44
Totals	15	116	102	83	105	162	163	156	163	159	145	98	52	25	4	1548

TABLE LXIII

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED FOR TIME OF DAY FOR TOTAL POPULATION

FACILITY AREA	TIME OF DAY												
	Before 8 am	8 am - 9 am	9 am - 10 am	10 am - 11 am	11 am - 12 n.	12 n. - 1 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm	After 6 pm	Totals
Gymnasium	2	22	51	79	50	57	60	56	41	19	9	13	459
Playing field-tarmac	0	31	14	116	17	158	27	117	33	33	27	4	577
Classroom-laboratory	0	5	18	21	35	11	26	38	20	3	0	0	177
Playground climbing-play apparatus	0	2	0	12	2	25	4	22	6	0	0	0	73
Hallway-stairway	0	5	2	16	9	33	6	26	11	2	0	2	112
Rink	0	0	8	6	3	1	2	12	2	1	1	0	36
In transit to or from school	0	4	0	0	3	13	1	1	9	0	0	0	31
Lockerroom-shower restroom	0	1	0	6	0	1	0	1	0	0	0	0	9
Pool	0	1	1	1	0	0	1	0	0	0	0	0	4
Other	0	10	7	7	5	19	6	17	7	1	0	1	80
Ski area	0	2	7	5	8	1	1	5	3	11	3	0	46
Totals	2	83	108	269	132	319	134	295	132	70	40	20	1604

TABLE LXIV

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED

FOR BODY REGION INJURED FOR TOTAL POPULATION

FACILITY AREA	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Gymnasium	67	32	17	34	30	15	3	14	15	34	19	54
Playing field-tarmac	137	65	21	60	11	24	15	20	13	25	28	35
Classroom-laboratory	34	21	2	12	3	1	2	1	4	4	20	42
Playground climbing-play apparatus	27	7	5	7	0	3	0	2	1	5	2	3
Hallway-stairway	32	13	2	12	2	4	1	4	3	4	8	13
Rink	8	9	0	1	0	0	0	0	1	2	1	3
In transit to or from school	9	6	1	2	0	2	1	0	1	3	1	2
Lockerroom-shower restroom	5	1	0	1	0	0	0	0	0	0	0	2
Pool	1	1	0	0	1	0	0	0	0	0	0	0
Other	26	10	4	5	2	0	1	3	1	2	7	17
Ski area	5	4	1	1	0	3	1	2	0	1	1	2
Totals	351	169	53	135	49	52	24	46	39	80	87	173

TABLE LXIV (continued)

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED

FOR BODY REGION INJURED FOR TOTAL POPULATION

BODY REGION INJURED

FACILITY AREA	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Eye	Totals
Gymnasium	8	3	29	5	1	10	18	7	60	46	10	531
Playing field-tarmac	4	7	21	1	4	6	40	16	36	23	29	641
Classroom-laboratory	2	2	4	1	0	3	2	0	4	5	15	184
Playground climbing-play apparatus	0	1	3	1	0	0	5	2	3	0	2	79
Hallway-stairway	0	1	1	2	1	3	2	2	8	3	5	126
Rink	0	0	0	1	0	1	8	2	2	0	1	40
In transit to or from school.	0	0	1	1	0	1	1	2	1	0	3	38
Lockerroom-shower restroom	0	0	0	0	0	0	0	0	0	0	1	10
Pool	0	0	0	0	0	0	0	1	0	0	0	4
Other	0	1	0	0	1	2	4	2	3	5	3	99
Ski area	0	0	0	0	0	0	7	14	5	0	2	49
Totals	14	15	59	12	7	26	87	48	122	82	71	1801

TABLE LXV

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED FOR TYPE OF INJURY FOR TOTAL POPULATION

FACILITY AREA	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Other	Totals
Gymnasium	17	61	1	80	39	47	104	23	73	16	7	35	20	523
Playing field-tarmac	49	127	1	114	42	37	68	18	68	24	15	59	49	671
Classroom-laboratory	12	78	9	29	5	5	8	0	8	2	0	11	18	185
Playground climbing-play apparatus	15	21	0	8	3	0	4	1	7	4	4	7	7	81
Hallway-stairway	7	38	0	19	10	2	13	2	7	6	1	11	4	120
Rink'	3	11	0	10	2	1	5	1	2	3	0	1	1	40
In transit to or from school	5	14	0	3	4	1	2	1	3	3	1	2	1	40
Lockerroom-shower restroom	2	5	0	1	1	0	0	0	0	0	0	1	1	11
Pool	0	3	0	0	0	1	0	0	0	0	0	0	0	4
Other	6	30	1	14	2	2	5	2	6	6	3	4	5	86
Ski Area	2	6	0	8	3	3	11	1	15	4	0	1	0	54
Totals	118	394	12	286	111	99	220	49	189	68	31	132	106	1815

TABLE LXVI

FREQUENCY OF INJURIES AS RELATED TO FACILITY AREA WHERE ACCIDENT OCCURRED

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

FACILITY AREA	PROBABLE DIRECT CAUSE												
	Blow by object	Fall/trip not due to any observed external factor	Fall/loss of balance where apparatus used	Obstruction on playing area	Accidental collision by participants	Body contact in normal course of action	Strain or overexertion	Carelessness on part of pupil	No clear or apparent cause	Other probable direct causes	Animal bites	Fights	Totals
Gymnasium	97	102	79	9	57	44	18	26	15	27	1	4	479
Playing field-tarmac	92	150	10	26	132	84	10	28	9	39	0	24	613
Classroom-laboratory	16	30	10	0	10	4	1	67	6	38	1	6	189
Playground climbing-play apparatus	15	15	9	0	19	5	0	[illegible]	1	4	1	3	78
Hallway-Stairway	15	31	3	0	20	4	2	18	2	13	0	7	115
Rink	4	23	1	0	2	1	1	2	1	4	0	0	39
In transit to or from school	7	5	2	0	1	0	0	7	2	5	1	5	35
Lockerroom-shower restroom	2	3	1	0	0	1	0	0	0	1	0	1	9
Pool	1	0	1	1	0	1	0	1	0	0	0	0	5
Other	10	21	3	0	2	1	1	20	5	13	1	7	84
Ski area	5	23	9	1	5	2	0	2	0	2	0	0	49
Totals	264	403	128	37	248	147	33	177	41	146	14	57	1695

TABLE LXVII

FREQUENCY OF INJURIES AS RELATED TO TIME OF DAY

FOR GRADE FOR TOTAL POPULATION

TIME OF DAY	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Before 8 am	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
8 am - 9 am	3	8	5	4	2	4	11	8	9	5	7	7	4	1	0	78
9 am - 10 am	2	1	0	0	4	5	4	16	16	16	12	19	5	1	0	101
10 am - 11 am	2	23	20	27	14	29	34	24	30	30	21	7	0	6	0	267
11 am - 12 n.	3	4	5	3	4	13	8	14	23	18	15	5	7	3	0	125
12 n. - 1 pm	0	34	31	15	31	44	36	31	26	27	15	8	3	5	2	308
1 pm - 2 pm	0	5	7	4	12	9	13	18	11	10	21	9	6	1	0	126
2 pm - 3 pm	5	25	27	27	30	45	38	17	23	20	14	7	4	7	1	290
3 pm - 4 pm	0	15	6	2	7	11	16	16	16	18	10	7	2	1	0	127
4 pm - 5 pm	0	0	1	1	0	1	3	4	6	11	15	15	7	0	1	65
5 pm - 6 pm	0	0	0	0	0	1	0	3	1	2	11	11	7	0	0	36
After 6 pm	0	0	0	0	0	0	0	4	2	1	2	3	7	0	0	19
Totals	15	115	102	83	104	162	163	155	163	159	144	98	52	25	4	1544

TABLE LXVIII

FREQUENCY OF INJURIES AS RELATED TO TIME OF DAY

FOR BODY REGION INJURED FOR TOTAL POPULATION

BODY REGION INJURED

TIME OF DAY	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Before 8 am	0	0	0	0	0	0	0	0	0	0	0	1
8 am - 9 am	24	9	3	6	5	5	1	3	2	1	3	7
9 am - 10 am	11	12	2	7	6	4	1	3	2	9	8	11
10 am - 11 am	77	35	12	25	8	7	6	4	6	13	15	31
11 am - 12 noon	21	14	7	7	3	3	2	3	1	7	9	21
12 noon - 1 pm	85	35	13	33	5	10	5	10	6	21	17	26
1 pm - 2 pm	24	14	2	12	5	3	0	4	4	7	8	23
2 pm - 3 pm	68	28	9	31	6	12	4	8	10	8	18	29
3 pm - 4 pm	26	16	3	7	8	2	1	3	3	7	5	15
4 pm - 5 pm	8	4	0	3	2	4	3	3	1	5	2	5
5 pm - 6 pm	6	1	1	1	0	3	0	2	2	1	2	1
After 6 pm	1	1	1	3	0	0	1	2	2	0	0	2
Totals	351	169	53	135	48	53	24	45	39	79	87	172

TABLE LXVIII (continued)

FREQUENCY OF INJURIES AS RELATED TO TIME OF DAY

FOR BODY REGION INJURED FOR TOTAL POPULATION

TIME OF DAY	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Eye	Totals
Before 8 am	0	0	0	0	0	0	0	0	0	1	0	2
8 am - 9 am	2	1	4	0	0	2	3	2	6	1	3	93
9 am - 10 am	1	2	7	1	0	0	6	3	13	6	6	121
10 am - 11 am	4	0	12	1	2	6	10	4	12	11	12	313
11 am - 12 noon	1	3	4	1	2	1	9	6	9	7	7	148
12 noon - 1 pm	0	1	8	3	0	1	15	4	19	23	16	356
1 pm - 2 pm	1	0	4	1	1	3	4	3	22	3	6	154
2 pm - 3 pm	1	4	7	4	1	9	11	7	14	19	13	321
3 pm - 4 pm	2	2	8	1	0	2	8	9	7	7	6	148
4 pm - 5 pm	1	2	4	0	1	1	10	6	9	2	1	77
5 pm - 6 pm	0	0	0	0	0	1	7	4	7	1	1	41
After 6 pm	1	0	1	0	0	0	3	0	4	1	0	23
Totals	14	15	59	12	7	26	86	48	122	82	71	1797

TABLE LXIX

FREQUENCY OF INJURIES AS RELATED TO TIME OF DAY

FOR TYPE OF INJURY FOR TOTAL POPULATION

TIME OF DAY	TYPE OF INJURY													
	Abrasion-scrape	Open wound	Burn	Bone bruise	Muscle bruise	Muscle strain	Sprain	Dislocation-Separation	Fracture	Concussion	Nose bleed	Teeth loosened or broken	Other	Totals
Before 8 am	0	0	0	0	0	0	2	0	0	0	0	0	0	2
8 am - 9 am	9	22	0	17	2	7	13	4	7	2	0	5	8	96
9 am - 10 am	2	22	0	17	7	10	21	5	14	3	2	7	9	119
10 am - 11 am	19	72	2	45	20	16	25	9	30	13	7	25	22	305
11 am - 12 n.	9	40	2	22	9	6	19	3	16	5	2	6	10	149
12 n. - 1 pm	28	79	0	68	22	12	32	12	32	17	5	32	20	359
1 pm - 2 pm	8	35	2	22	11	10	30	1	11	6	2	12	5	155
2 pm - 3 pm	28	70	5	58	15	13	33	8	30	11	8	31	17	327
3 pm - 4 pm	11	37	1	20	15	5	22	5	17	2	1	6	8	150
4 pm - 5 pm	3	9	0	13	6	8	15	1	12	4	2	3	5	81
5 pm - 6 pm	0	1	0	3	4	6	6	2	11	5	1	1	1	41
After 6 pm	0	5	0	1	2	4	1	0	8	0	1	4	0	26
Totals	117	392	12	286	113	97	219	50	188	68	31	132	105	1810

TABLE LXX

FREQUENCY OF INJURIES AS RELATED TO TIME OF DAY

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

TIME OF DAY	PROBABLE DIRECT CAUSE												
	Blow by object	Fall/trip not due to any observed external factor	Fall/loss of balance where apparatus used	Obstruction on playing area	Accidental collision between participants	Body contact in normal course of activity	Strain or overexertion	Carelessness on part of pupil	No clear or apparent cause	Other probable direct causes	Animal bites	Fights	Totals
Before 8 am	1	0	0	0	0	1	0	0	0	0	0	0	2
8 am - 9 am	11	21	11	3	10	6	4	8	3	7	1	5	90
9 am - 10 am	14	31	7	0	15	11	2	14	3	15	1	0	113
10 am - 11 am	52	61	27	3	51	16	7	27	8	22	2	10	286
11 am - 12 n.	19	35	10	2	13	9	4	23	5	14	0	2	136
12 n. - 1 pm	52	85	20	8	50	26	1	35	4	36	2	17	336
1 pm - 2 pm	22	32	11	2	20	11	3	22	5	11	0	4	143
2 pm - 3 pm	53	86	17	11	47	11	6	29	6	27	5	11	309
3 pm - 4 pm	29	25	15	4	12	15	1	18	5	10	1	6	141
4 pm - 5 pm	8	15	6	2	14	19	2	1	1	2	2	0	72
5 pm - 6 pm	1	4	2	1	12	16	2	0	1	0	0	0	39
After 6 pm	1	3	2	0	6	5	1	1	0	2	0	0	21
Totals	263	398	128	36	250	146	33	178	41	146	14	55	1688

TABLE LXXI

FREQUENCY OF INJURIES AS RELATED TO TYPE OF INJURY

FOR GRADE FOR TOTAL POPULATION

TYPE OF INJURY	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Abrasion-scrape	0	22	12	12	13	11	6	10	8	4	3	3	1	3	0	108
Open wound	8	43	41	28	27	34	35	36	41	36	22	13	9	7	1	381
Burn	0	0	0	0	1	0	0	0	4	4	0	1	0	0	0	10
Bone bruise	5	28	22	14	13	35	29	32	27	27	21	8	9	7	1	278
Muscle bruise	1	3	7	4	8	10	15	11	9	13	14	6	2	2	1	106
Muscle strain	0	1	0	0	4	4	7	12	9	12	25	12	9	0	1	96
Sprain	0	0	4	5	10	21	19	26	22	34	32	25	13	1	0	212
Dislocation-Separation	0	0	1	1	2	4	7	2	8	8	11	4	0	0	0	48
Fracture	0	3	5	7	9	22	27	23	15	24	17	18	7	3	1	181
Concussion	1	4	4	4	4	9	4	7	11	5	5	5	2	0	1	66
Nose bleed	0	4	5	2	1	2	3	2	4	1	0	5	0	0	0	29
Teeth loosened or broken	0	12	14	8	22	10	15	8	15	8	6	2	4	3	0	127
Other types of injury	2	11	1	4	4	14	16	10	10	10	9	7	2	2	0	102
Totals	17	131	116	89	118	176	183	179	183	186	165	109	58	28	6	1744

TABLE LXXII

FREQUENCY OF INJURIES AS RELATED TO TYPE OF INJURY

FOR BODY REGION INJURED FOR TOTAL POPULATION

TYPE OF INJURY	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Abrasion-scrape	38	37	5	4	3	2	1	5	1	1	9	6
Open wound	124	110	11	13	0	0	1	3	2	4	31	60
Burn	0	1	0	0	1	0	0	0	3	0	2	1
Bone bruise	126	18	17	1	3	6	6	13	7	16	11	23
Muscle bruise	15	9	5	2	6	6	7	4	6	6	3	7
Muscle strain	1	1	0	0	23	10	4	3	2	4	2	4
Sprain	1	0	1	0	14	2	0	12	5	24	14	37
Dislocation-separation	2	1	3	1	2	9	2	5	0	3	5	15
Fracture	3	1	9	0	1	21	9	7	17	35	14	30
Concussion	63	5	3	2	3	2	0	1	0	1	2	1
Nose bleed	8	9	25	2	0	1	0	0	0	0	1	1
Teeth loosened or broken	4	18	3	129	0	0	0	1	0	0	0	0
Other types of injury	20	4	2	0	5	4	0	2	0	0	3	6
Totals	405	214	84	154	61	63	30	56	43	94	97	191

TABLE LXXII (continued)

FREQUENCY OF INJURIES AS RELATED TO TYPE OF INJURY

FOR BODY REGION INJURED FOR TOTAL POPULATION

TYPE OF INJURY	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Abrasion-scrape	1	2	4	1	1	4	9	2	2	4	9	151
Open wound	1	1	1	1	0	2	16	12	3	15	14	425
Burn	0	1	0	0	0	2	0	0	0	0	2	13
Bone bruise	1	1	14	8	0	6	14	8	7	22	12	340
Muscle bruise	4	2	15	3	1	5	9	9	6	5	22	157
Muscle strain	4	1	13	1	4	8	18	2	18	6	0	129
Sprain	1	0	3	0	0	0	22	3	88	16	0	243
Dislocation-separation	1	0	2	0	1	1	5	0	1	4	0	63
Fracture	1	0	3	1	0	1	6	16	11	17	1	204
Concussion	1	0	2	0	0	0	1	0	0	0	3	90
Nose bleed	0	0	0	0	0	1	2	0	0	0	4	54
Teeth loosened or broken	0	0	0	0	0	0	1	0	0	0	0	156
Other types of injury	1	9	11	1	1	3	6	4	3	6	24	115
Totals	16	17	68	16	8	33	109	56	139	95	91	2140*

*Number due to multiple injuries

TABLE LXXIII

FREQUENCY OF INJURIES AS RELATED TO TYPE OF INJURY

FOR PROBABLE DIRECT CAUSE FOR TOTAL POPULATION

TYPE OF INJURY	PROBABLE DIRECT CAUSE												
	Blow by an object	Fall/trip not due to any observed external factor	Fall/loss of balance where apparatus used	Obstruction on playing area	Accidental collision with participants	Body contact in normal course of activity	Strain or overexertion	Carelessness on part of pupil	No clear or apparent cause	Other probable direct causes	Animal bites	Fights	Totals
Abrasion-scrape	29	28	7	5	13	2	0	22	1	10	2	7	126
Open wound	76	88	22	10	51	12	0	75	8	60	4	17	423
Burn	0	0	0	0	1	3	0	5	2	2	0	0	13
Bone bruise	60	81	22	8	45	25	0	26	3	22	0	10	302
Muscle bruise	33	19	10	4	20	10	0	10	2	6	0	2	116
Muscle strain	1	27	15	0	9	20	21	2	7	0	0	0	102
Sprain	27	75	22	3	38	22	7	10	9	11	0	4	228
Dislocation-separation	8	9	7	0	11	7	4	3	1	1	0	3	54
Fracture	17	48	32	3	31	30	2	15	6	10	0	6	200
Concussion	12	26	6	0	9	7	0	4	1	2	0	4	71
Nose bleed	5	6	2	2	6	3	0	3	0	3	0	3	33
Teeth loosened or broken	21	28	1	5	42	10	0	9	2	15	0	7	140
Other types of injury	17	11	6	2	12	12	2	15	4	20	9	2	112
Totals	306	446	152	42	288	163	36	199	46	162	15	65	1920*

*Number due to multiple injuries

TABLE LXXIV

FREQUENCY OF INJURIES AS RELATED TO PROBABLE DIRECT CAUSE

FOR GRADE FOR TOTAL POPULATION

PROBABLE DIRECT CAUSE	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Blow by an object	1	25	11	13	17	29	31	37	26	28	13	12	7	2	1	253
Fall/trip not due to any observed external factor	5	33	34	30	30	43	37	28	39	41	28	27	7	5	2	389
Fall/loss of balance where apparatus concerned	2	1	3	3	7	9	13	24	22	19	11	4	3	3	1	125
Obstruction on playing area	0	2	8	0	5	3	5	3	1	4	0	1	1	1	0	34
Accidental collision between participants	3	15	27	15	19	30	28	15	19	19	23	15	8	6	0	242
Body contact in normal course of activity	0	4	4	4	6	9	9	12	9	10	35	20	15	0	0	137
Strain/ overexertion	0	0	0	0	0	1	5	4	1	3	12	5	1	0	0	32

TABLE LXXIV (continued)

FREQUENCY OF INJURIES AS RELATED TO PROBABLE DIRECT CAUSE

FOR GRADE FOR TOTAL POPULATION

PROBABLE DIRECT CAUSES	GRADE															
	Kindergarten	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Special Education	Staff	Totals
Carelessness on part of pupil	1	13	11	10	10	19	13	17	26	22	11	5	4	4	1	167
No clear or apparent cause	1	3	0	2	2	3	2	5	5	6	4	3	3	1	0	40
Other probable direct causes	3	12	10	4	9	13	20	10	23	16	7	6	4	4	0	141
Animal bites	0	4	0	2	1	1	1	1	1	0	0	1	0	1	0	13
Fights	0	10	6	5	5	7	5	5	5	2	2	0	1	0	0	53
Totals	16	122	114	88	111	167	169	161	177	170	146	99	54	27	5	1626

TABLE LXXV

FREQUENCY OF INJURIES AS RELATED TO PROBABLE DIRECT CAUSES

FOR BODY REGION INJURED FOR TOTAL POPULATION

PROBABLE DIRECT CAUSE	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper arm	Elbow	Forearm	Wrist	Hand	Finger
Blow by an object	72	54	14	19	1	2	5	5	3	6	15	53
Fall/trip not due to any observed external factor	109	36	7	28	6	12	7	18	13	30	18	13
Fall/loss of balance where apparatus concerned	22	9	7	2	12	6	2	5	6	15	5	7
Obstruction on playing area	11	3	1	6	0	1	1	1	0	1	0	1
Accidental collision between participants	44	35	13	44	2	11	3	4	4	11	10	16
Body contact in normal course of activity	21	5	3	10	11	14	2	5	3	3	6	8
Strain/overexertion	0	0	0	0	4	2	1	1	2	1	2	2
Carelessness on part of pupil	43	14	2	9	3	5	2	2	2	7	14	42
No clear or apparent cause	1	1	0	2	6	2	0	2	4	1	3	5
Other probable direct causes	27	12	4	15	2	0	0	2	2	4	13	30
Animal bites	0	3	0	0	1	0	0	1	0	0	2	2
Fights	18	12	3	8	1	2	1	1	1	2	4	6
Totals	368	184	54	143	49	57	24	47	40	81	92	185

TABLE LXXV (continued)

FREQUENCY OF INJURIES AS RELATED TO PROBABLE DIRECT CAUSES

FOR BODY REGION INJURED FOR TOTAL POPULATION

PROBABLE DIRECT CAUSE	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Blow by an object	1	2	6	0	0	2	1	3	0	6	31	301
Fall/trip not due to any observed external factor	2	2	9	6	1	7	29	16	53	21	2	445
Fall/loss of balance where apparatus concerned	5	0	14	1	1	3	8	7	8	10	0	155
Obstruction on playing area	1	2	1	0	0	1	1	2	1	4	1	40
Accidental collision between participants	0	3	5	2	1	1	19	6	20	12	13	279
Body contact in normal course of activity	2	1	11	1	2	1	14	6	17	8	3	157
Strain/overexertion	2	2	4	0	1	3	5	0	7	2	0	41
Carelessness on part of pupil	1	1	5	1	0	1	3	2	7	10	12	190
No clear or apparent cause	0	1	1	0	0	0	5	3	4	3	1	45
Other probable direct causes	0	0	4	1	0	3	6	4	10	11	8	158
Animal bites	0	0	2	1	0	2	0	2	0	0	0	16
Fights	1	1	0	0	1	0	0	1	0	0	5	68
Totals	15	15	62	13	7	26	91	52	127	87	76	1895*

*Number due to multiple injuries

TABLE LXXVI

FREQUENCY OF INJURIES AS RELATED TO GRADE

FOR BODY REGION INJURED FOR TOTAL POPULATION

GRADE	BODY REGION INJURED											
	Head	Face	Nose	Teeth	Neck	Shoulder	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger
Kindergarten	6	3	2	0	0	0	0	0	0	0	0	2
One	51	27	2	13	1	0	1	0	1	1	2	5
Two	45	17	5	14	1	1	0	1	1	3	4	5
Three	29	13	2	8	1	4	1	2	1	1	4	6
Four	21	16	3	22	0	3	2	4	4	4	5	9
Five	45	15	5	11	2	6	5	6	4	10	8	16
Six	30	8	5	16	6	7	1	3	6	13	7	19
Seven	23	19	4	7	8	3	3	6	3	12	10	18
Eight	36	10	8	16	5	5	2	5	1	8	6	29
Nine	22	12	7	7	7	6	4	8	8	10	14	20
Ten	13	8	1	6	10	10	2	4	2	7	13	20
Eleven	7	4	5	2	3	1	1	2	2	5	3	9
Twelve	5	5	1	4	3	3	2	2	3	1	5	3
Special Education	7	3	0	3	0	1	0	1	1	1	1	2
Staff	1	0	0	0	2	1	0	0	0	0	0	1
Totals	341	160	50	129	49	51	24	44	37	76	82	163

TABLE LXXVI (continued)

FREQUENCY OF INJURIES AS RELATED TO GRADE

FOR BODY REGION INJURED FOR TOTAL POPULATION

GRADE	BODY REGION INJURED											
	Chest	Abdomen	Back	Buttocks	Groin	Thigh	Knee	Lower leg	Ankle	Foot	Eye	Totals
Kindergarten	0	1	1	0	0	0	0	0	0	1	0	16
One	0	0	1	1	2	2	5	2	0	2	6	125
Two	0	0	1	0	0	0	2	0	1	2	7	110
Three	0	1	3	0	0	1	3	0	2	3	5	90
Four	0	0	1	2	2	2	3	1	2	3	4	113
Five	2	1	4	0	1	0	4	0	7	8	8	168
Six	0	3	5	0	0	2	5	8	10	11	7	172
Seven	2	1	8	0	0	2	5	4	18	11	9	176
Eight	1	1	10	4	0	2	7	0	9	8	10	183
Nine	4	2	7	3	0	2	13	7	20	6	3	192
Ten	2	2	8	1	1	6	13	5	20	10	5	169
Eleven	2	2	6	0	1	4	10	7	17	8	4	105
Twelve	1	0	2	0	0	1	6	1	14	0	1	62
Special Education	0	1	1	0	0	0	1	0	0	2	2	27
Staff	0	0	0	1	0	1	0	2	1	1	0	11
Totals	14	15	58	12	7	25	77	37	121	76	71	1719*

*Number due to multiple injuries